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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*On Aphasia.* By JOHN POPHAM, Ex-Sch., and Berkeley Medallist for Greek, T.C.D.; A.M., M.B., Dub. and Cantab.; L.K. and Q.C.P.; Physician to the Cork North Infirmary, &c.

DISORDERS of speech have been observed from a very remote period in connexion with diseases of the brain. Allusions to them occur in the works of the Father of Medicine, and the association of dextral paralysis, with lesion of speech, is noticed in a case in his Epidemics.[a] Loss of voice and loss of speech, or aphonia and anaudia, were properly contradistinguished by him, and he shows a sense of the value of these states as prognostics, which is certainly wonderful for his time.[b]

Since the period of Hippocrates until within the last few years, injuries of speech did not receive the attention which they deserved. This was due, in part, to their dependent attitude as symptoms, and the want of a fixed basis of reference, and partly to the neglect

[a] Hippocratis op. Edit. A. Foes, De Morb. vulg. lib. i. § 7, p. 990—also Coac. præn. p. 174, B.

[b] "Loss of speech (*αἱ ἀναυδιαι*) in fever is bad," &c.

of the study of language as a science. Still, as M. Jules Falret has shown in his very able digest,[a] information of much value upon this subject can be gleaned from the medical writings of our forefathers, an old mine newly opened, and still unexhausted. Many of the examples, it is true, have the air more of singularities, whose interpretation is tacitly bequeathed to the future, than of duly estimated pathological truths. The first step in advance was made, when it occurred to the fertile genius of M. Bouillaud to invert the problem and boldly regard disordered speech as a disease *sui generis*, with its own seat and laws. Although the views of M. Bouillaud respecting the anterior lobes of the brain as the foci of language have not as yet been substantiated, they have the credit of originating theories of even greater interest. Such are those of MM. Dax and Broca, the former limiting the cerebral seat of the speech-faculty to the left hemisphere; the latter fixing its *locus* in the third left frontal convolution.

The claims of "cerebral loss of speech" to rank as a disease in its own right, elicited the widest diversity of opinion in the debates at the Academie de Médécine in 1865. Omitting details on minor points, one section with M. Trousseau sanctioned it, with some modification, as a substantive disease. A second section, including MM. Piorry and Cerise, pronounced it a phantom-malady, a symptom appertaining to various diseases of the brain, and, like the famous Avvocato del Diavolo, protested against its admission into the Kalendar. A third section agreed with M. Baillarger, the excellent alienist physician, that while there are some grounds for believing in a special lesion, a positive decision thereupon is premature; so that instead of forcing laws to accord with facts, we should go back and collect facts for laws. In responding to such an invitation, it is not easy for a writer to avoid saying things as well or better said already.

In these countries medical opinion has, on the whole, been favourable to the so-called aphasia. This is due in part to the eloquent leçons of M. Trousseau. But we owe it to the memory of the late Professor Jonathan Osborne, to say that his communication "On the Loss of the Faculty of Speech Depending on Forgetfulness of the Art of using the Vocal Organs," in the *Dublin Journal*, November, 1833, anticipated the explanation for which M. Baillarger has received the credit, and was far in advance of his time. Neither did

[a] Archives Génerales de Médécine, 1864, Vol. i., pp. 336 and 591.

the subject escape the discursive glance of the late Dr. Graves.—*Dublin Quarterly Journal*, February, 1851. Since M. Broca's announcement in 1861, the subject has received the attention of such able writers as Drs. F. Winslow, Hughlings Jackson, Wilks and Moxon, of London; Dr. Banks, of Dublin, in this Journal, February, 1865; Drs. Sanders, Scoresby-Jackson, and Anderson, of Edinburgh; Drs. Gairdner and A. Robertson, of Glasgow, and other eminent physicians.

Assuming, then, that aphasia is a morbid unity, and not a simulacrum, the first question is to determine its pathological conditions.

In affections of the brain we meet with various degrees both of injury of the faculty of speech, and of oblivion of words, the latter ranging from transient eclipse to total obscuration. They may occur by themselves, or be accompanied with disorders of other functions. Are we warranted in forming by abstraction a class-disease of speech in cases where the disturbance of this faculty seems the paramount affection? There appears no sufficient reason why loss of speech should not be as well entitled to the name of a disease as loss of voluntary motion, or of sensibility, or of intelligence, all of which occur in nosography as distinct maladies.

The objection to one applies to all, that they generally betoken *structural* alterations in the brain. But as such underlying alterations are not, as yet at least, so definitively settled as to allow us confidently to predict their place, we are still obliged for convenience to name the disease in most cases from some functional injury. But what is to guide us when disorders of several functions, co-ordinate in rank, exist together? Should, for example, aphasia and hemiplegia be present in the same case, is our choice between the two names to depend, or not, upon the relative amount of their functional injuries? Heretofore the speech-lesion was ignored. But M. Broca has changed all this. If hemiplegia accompany aphasia, as it often does, it should, according to him, be regarded, not as a factor in the case, but as an epiphenomenon. Thus he lays down three characters of aphasia, two of them positive, (1) that the intellect continues sound; (2) that verbal memory is the only cerebral function injured; and one negative; (3) that peripheral paralysis of the articulating organs is not the cause of the loss of speech, which is purely cerebral.

A wider experience soon convinced unbiassed observers that M. Broca's tests were too stringent. Cases of aphasia, pure and simple, limited, for a time at least, to loss of verbal memory, do exist, with-

out any material difficulty of utterance, or any signal failure of intelligence, but these stereotyped examples are few. First, the intellect, as a rule, seldom retains its absolute integrity. And here we may remark that some writers, in their pardonable eagerness to believe that their aphasic patients preserve their powers of ratiocination unimpaired, are apt, as a sufficient proof of it, to rely very much upon their consciousness of the rational acts of ordinary life, or on their execution of some simple numerical calculations. But what proves too much proves nothing. To try the point, questions should be set which come up to the level of the previous capacity of the individual, and which demand some continuous mental attention. It is in this inability to concentrate the whole thinking power upon a difficult subject that the mind betrays its weakness. As to the second test, the upset of the muscular equilibrium sooner or later, by palsy or spasm, too constantly occurs to allow loss of verbal memory its claim to be considered the solitary function affected. Even the third, though the most constant test, is not unexceptionable, some peculiarity or other of utterance being found, not sufficient, however, as Dr. Sanders observes, "to prevent or seriously to interfere with the articulate pronunciation of words."[a] Of this kind we may mention unusual rapidity of speech and blurting out words, or hesitation and drawling, loudness of tone, intermixture of syllables, &c., &c.

It appears, therefore, that loss of the memory of words is not sufficient to explain all the phenomena in those cases, and it fails altogether in clearing up those singular, but well-authenticated exceptions, in which the individual, when attempting articulate language, only gibbers and makes meaningless sounds, but is able to express his ideas correctly in writing. To include the latter variety there is required a second form of aphasia, in which the thing forgotten is not language, but (as in the case given by Dr. Osborne) the acquired art of using the articulating apparatus; or, as others think, a lesion of the centre of co-ordination for the speech-movements; or again, a failure in the transmission of the behests of the will. Hence, the basis of injury in the first form would be a defect in a psychical function, while in the second it would be a flaw in some part of the nervous machinery. Two typical formulæ of aphasia are, therefore, according to our present knowledge, to be discriminated. (1). *Lethological or Amnesic Aphasia*—viz.: That

[a] Edinburgh Monthly Medical Journal, March, 1866.

form of defective speech, which is caused by partial or complete forgetfulness of language, both spoken and written, without a sufficient impairment of the intelligence, or difficulty of the articulation, to account for it. (2). *Aneural or Ataxic Aphasia*—viz. : That loss of the faculty of speech, which consists in a partial or total inability to articulate words correctly, without any obvious paralysis of the tongue, lips, &c., while the memory of words and of their significations is retained, and the individual is able to write, though not to speak, intelligibly.

To these two forms there are cognate states, between which and them it is not easy at times to draw the line of demarcation, as we shall see farther on.

The disorders of speech involve an inquiry into the relation between thought and language. Is this relation arbitrary, conventional, or necessary? If, as we learn from Destutt de Tracy, we can have no objective knowledge of other beings in the outer world than ourselves, save by the impressions which they cause us, the use of *signs* for interpreting those impressions becomes one of the first necessities of human existence. But signs are either natural and constant, such as voice, gesture and facial expression,[a] or artificial and mutable, such as words, to which nature invites man by the gift of organs, as conditions of speech. Education teaches the child that a sound, uttered by the tongue, recognized by the ear, approved by the judgment, treasured by the memory, is thenceforward to represent to his mind a thought. But for this purpose a permanence of relation between sense and sound must be established. Ideas, being the offspring of the same senses and faculties, are alike in all our species, whereas words, as creatures of the will, are nowhere alike. Speech would, therefore, be unsettled, unless the arbitary character of words, as sounds,[b] could be so modified that, by voluntary agreement amongst peoples, they should not be changeable at will. Hence it is, that language in the concrete, that is, as a tongue, is conventional, and, as society advances in refinement, may become so redundant as to make it painful to recollect all the delicate *nuances* of thought and expression; while in the abstract, that is, the formal use of words as instruments of thinking, language is an obligation almost inseparable from the

[a] "Sæpe tacens vocem, verbaque vultus habet."
"Me specta, nutusque meos, vultumque loquacem."—Ovid.

[b] Max Müller endeavours to prove that the primitive roots of language are natural productions.

laws of thought. It draws forth thought from its mysterious recesses, gives it, in the imagery of the old Greek poet, wings for diffusion,[a] imparts fixedness to its flashes, affords a clew in association to trace its whereabout in the memory, links premiss to premiss in reasoning. "Words," says Bacon, "exercise a reactionary power over the intellect;" the idea calls up the name, and the name in turn suggests the idea. In fact, speech becomes to thought what the atmosphere is to light, its ambient medium, to which it owes perspicuity, colour, and utility. How is this union, which is made life-long by custom and habit, affected by disease? Sometimes thought and speech together, "like the children of our youth, die before us." Sometimes, as in the present disease, words fade away, while ideas more or less subsist. In the latter case natural language is mostly brought into exaggerated use, as a mimetic substitute for words. What elements of speech suffer most in aphasia? Dr. Osborne was of opinion that "the most common failures of memory were to be found amongst nouns, and especially amongst proper names, in consequence of their being less frequently repeated than verbs or prepositions,"[b] an observation echoed by Dr. Graves, but anticipated by M. Louyer-Villermay. In my limited experience, verbs and particles, except the most simple of the former, such as the auxiliary verbs, &c., suffer as much as nouns, and some nouns in daily use are at times amongst the soonest forgotten. Proper names are certainly the most perishable, including what is curious, the name of the individual himself, which is supposed to stick to one like the skin. If the first learned be the most durable, it would be in favour of nouns.

An act of speech is a very complex operation. Upon analysis it includes various steps, from pure thought to mechanical utterance, so rapidly successive as to appear simultaneous. All the stages may be reduced for convenience under two heads, which may be termed *cognitive* and *executive*, thought-speech and spoken-speech, the interior and exterior speech of M. Bouillaud.

A. The Cognitive process comprises something like the following states: (*a*) the direct presentation of an object to the sensorium, or of an idea or image to the mind; or (*b*) the secondary presentation of an idea, when resuscitated out of unconsciousness by memory; (*c*) the naming acts, involving past and present conditions, such as learning words as signs, retaining them in memory,

[a] "ἔπεα πτερόεντα."—Homer.

[b] Dublin Journal, November, 1833, page 158.

recognizing them as objects of former perceptions; reproducing the right word for the right idea, &c., &c.; (*d*) the aid of other mental states, such as habit, association, attention, &c., which, by long custom and apt concatenations of thought, help us to form those rapid judgments necessary for the quick communications of speech.

B. The Executive process is partly *psychical*, partly *somatic*.

1st. The psychical part consists of the will and the emotions.

(*a*) The will may be termed the head-centre of action. It interposes as legatus between intellect and brain. It initiates the speech-impulse, and thus, in point of time, precedes the intellectual operation, and continues its oversight until the mechanical process be completed.

(*b*) The emotions occupy a much less elevated position. They sometimes, as motives, determine the will to originate speech, sometimes they originate it themselves, and even in despite of the will, by a sudden impulse upon the bodily structures, as is seen in the involuntary ejaculations from bursts of passion or feeling in this and other diseases.

2nd. The somatic or mechanical part of the executive process seems also to comprehend several stages, such as:—(*a*) the reception by the will from the intellect of the thoughts turned into words, and the transmission of them to a motor centre. In this case the worded thought is supposed to be developed through the agency of the grey vesicular cortical surface, and to be conducted by the fibres of the white medullary mass to the corpus striatum as the motor centre. (*b*) The combination of adjustments for the speech movements. This includes a supply of motor force measured to suit the occasion, incitation of the appropriate nerves, association of these into temporary groups, and harmonizing their combined action. Whether this innate modifying power be condensed in central masses, or diffused, we cannot tell ; our consciousness only warns us when there is a jar in the movements. (*c*) The transmission of force from the brain to the articulating organs through nerves, as internuntii. (*d*) The muscular contractions, of course very variable for letters of such diversity of sound as labials, dentals, gutturals, &c. (*e*) A vocal apparatus to make the sounds audible, and lubricated to prevent dryness. (*f*) Hearing-organs to establish early a consensus between utterance and sound. Lastly, an external medium of suitable density.

The perfection of speech may be interrupted by defects in any of these stages, or even altogether lost. They represent states very

different from each other, and hence the forms of speechlessness are numerous. For presenting a thorough view of speech, as affected by disease, they all have their value, but as this would widen the question too much, we shall, retaining the term aphasia as a convenient genus, notice such forms as are to be distinguished from Aphasia *proper*.

1st. *Aphasia propter dementiam.*—"Alalie par hébétation."—Mutism from idiocy. A very striking case of congenital speechlessness is now under my care. Mary Cadigan, aged twenty-five, of ordinary development, not deaf, has never articulated a word in her life. She utters sounds, however, which resemble the cries of a wild animal. She has not sense enough to feed herself, while she shows not the least recognition of the person who has fed her for years. She is not paralysed, and when set up on her legs can move forward a few steps, but would fall unless caught. The co-ordinating power over the muscles is almost absent. A case, not unlike this, occurred to M. Breschet, who found the anterior lobes of the brain undeveloped.[a]

2nd. *Aphasia surdorum ab ortu.*—Deaf-mutism. This state deserves to be carefully studied in relation to the question how far thinking is impeded by the want of oral language. In these cases the loss of speech is mostly compensated by pantomimic action, so facile and suggestive as to give some warranty for the assumption that gestural signs are as well entitled to a cerebral habitat as verbal.

Connected with *congenital* deaf-mutism is that *acquired* form, more frequent than is supposed, in which the hearing has been abolished by disease at too early an age for the child to learn the sounds of words effectively. A case of this in a servant girl, about twenty-three years old, has just fallen under my notice. She can write a little, and makes an attempt at speaking some words, for instance, sugar is "duce," pain is "pay," apron "aby," saucepan "dauban," and her own name, Bridget Vaughan, is "Pitchy Baum." There are, however, various expressions used by her, such as duba, dema, dumuff, atchum, didum, jip, &c., which would require a Bunsen or Max Müller to determine what primitive roots they resemble.

3rd. *Aphasia ficta* (*proœretica*, *Sauvages*). Feigned or voluntary mutism. This presents some curious examples of that morbid state of mind which could keep up a deception at so terrible a sacrifice.

[a] Andral Clinique Medicale. By Spillan, p. 183.

Sir Walter Scott's beautiful fiction of the mute Fenella occurs to us, in which the fraud so well sustained was at length betrayed through the emotions. Scott gives the history of a real case, in which dumbness was feigned by a woman for three or four years, until one day seeing a scampish boy thieving, she forgot her part, and cried out, "Ah! you little devil's limb," to the horror of the boy, who ran off, in the belief that "dumb Lizzie was a warlock."

4th. *Aphasia ab ecstasi vel melancholia.*—Mutism self imposed from high mental tension or depression. "Sadness and misanthropy with silence," (Hippocrates). The mind absorbed in some dominant idea is insensible to the succession of events going on around.

5th. *Aphasia attonitorum.* — Speechlessness from sudden and intense emotion, especially terror. The effect of the shock is mostly but temporary; however, John Peter Frank refers to three cases where it was lasting. In classical authors, the term aphasia, is only applied to this state.

6th. *Aphasia traumatica.* — Mutism from traumatic causes. Sauvages cites a case in which, from a contusion of the neck, loss of speech lasted two years, and was cured by cathartics. I am indebted to Dr. Hewitt, of Cork, for notes of a like case. A boy named Fane, aged fifteen, received a kick from a cow, between the nose and forehead, which stunned him, but left apparently at the time no other injury than a few scratches and slight epistaxis, so that he walked after it some miles to a fair. On the fourth day, he was seized, while at work, with vertigo and loss of speech. A fortnight afterwards his head was shaved and blistered without success. Similar counter-irritation by blistering and ung. ant. tart. was used to the throat, and mercury was given to salivation, but without any improvement. He was then taken to Dr. Fowke, of Cloyne, to be mesmerized, which step also failed. After being dumb for seven months, Dr. Hewitt presented him before the Cork Medical Society in 1852. His hearing, taste, and sight were perfect, deglutition easy, and his tongue could be moved in any direction. He could not articulate a single letter of the alphabet. A brief account of the above was published in the *Dublin Medical Press* for 1852. The sequel of the case was curious. He continued twelve months as servant with Dr. Fowke, totally mute, when he got extensive inflammation of the anterior part of the scalp, followed by suppuration, and regained his speech as suddenly as he had lost it eighteen or nineteen months before. He continued in the country nearly two years, having the full use of speech, and

then emigrated to America, where he got married. It appears that he died about two years after; the cause of death was not known.

The following case is abridged from Hippocrates. A beautiful girl, nearly twenty, was struck in the forehead (bregma) with the flat of the hand, by a playmate. She suddenly lost her sight and breath. On returning home she was seized with fever, pain of head, and flushing of face. On seventh day, a cyathus of reddish pus issued from right ear with relief. The fever relapsed, she became *speechless* (anaudos) and drowsy, the *right* side of her face was drawn, and the tongue paralysed, convulsive tremors set in, and she died on the ninth day.[a]

7th. *Aphasia spasmodica.*—Spasmodic mutism. This form is well known in connexion with hysteria and hypochondriasis, and sometimes lasts for weeks or months. Dr. Bright gives two cases of it as hysterical trismus.[b] The periodic or intermittent form is curious. It occurs usually in the evening, going off in the morning; and J. P. Frank met with three cases of it; one lasted five months.[c] Another case is quaintly described by Dr. T. Willis, author of "De anima Brutorum," which he terms "paralysis spuria." "I am now attending a modest and prudent woman, who for many years has been liable to this, not only in the members, but also in the tongue. She speaks freely for a time, but after a long or rapid conversation she becomes as mute as a fish, being unable even to say (γρυ) gry. After a few hours she recovers speech."[d]

8th. *Aphasia a debilitate vocis.*—Aphonia. Here the defect lies in the vocalizing or sound-producing organs, and not in the articulating; a mute cannot articulate, but can utter sounds; an aphonic cannot utter any sound whatever. The two states do not often co-exist.

9th. *Aphasia symphathetica.*—This interesting variety happens at times in the course of other diseases, and recovery usually takes place when the primary ailment has subsided. It seems most frequently associated with some form of fever, chiefly of the gastric or typhoid form, and in young persons. Dr. Osborne gives three examples of this kind. Sauvages mentions a case of it from worm

[a] Hippoc. de Morbis Vulgatis, Lib. V., sec. vii., p. 1154.—Foes.

[b] Bright's Reports of Medical Cases, Vol. ii., p. 460., cases 215 and 217.

[c] J. P. Frank, De Morbis Hom. Cur. French translation by Goudareau, Vol. ii., p. 458.

[d] Op. T. Willis, M.D., de Paralysi, p. 406.

fever in a child (mutitas verminosa), which was cured after twenty days by the expulsion of thirty-six lumbrici. The child recovered speech, but could not utter the letter B.[a] A most striking case is given in full by Dr. Scoresby-Jackson, as a sequela of typhus fever.[b] E. Wilson notices the case of a child who became dumb from retrocession of measles, but speech came back two years after. J. P. Frank has observed it in puerperal fever; and Hippocrates has noticed its occurrence in the fevers of pregnant women. It is not uncommon after cerebral affections. Joseph Frank had a case in a child of six years, who was attacked soon after birth with convulsions, and remained mute, though the hearing was perfect.[c] As a sequela of epilepsy, it occurred in a policeman, named Tobin, admitted under my care into the Cork North Infirmary, November 22nd, 1866. All the effects of the fit had passed off for some days, except aphasia; he had no loss of verbal memory, he swallowed easily, and moved the tongue in all directions, but could not articulate a word. He was leeched on the temples, and blistered behind the ears, getting bromide of potassium internally, which treatment, after ten days, quite restored this important faculty.

10th. *Aphasia a narcoticis.*—Some kinds of vegetable narcotic poisons possess the property of causing suspension of the speech-faculty, but not as the effect of coma. In the *Dublin Quarterly Journal* for November, 1865, I detailed the occurrence of temporary dumbness in a boy who had eaten the roots of *œnanthe crocata.* Sauvages mentions that robbers infesting Montpellier in his time drugged the wine in taverns with the juice of the seeds of datura stramonium; those who drank it could not speak a word for two or three days, though wide awake.[d] The berries of atropa belladonna, and roots of hyoscyamus, are said to have a like effect. The power of alcohol in fusing syllables together, or "clipping the Queen's English," is well understood.

11th. *Aphasia a vitio instrumentorum loquendi.*—This includes local injuries of the speech-organs, such as loss of the tongue, or hypertrophy or atrophy of it, morbid adhesions, &c.

12th. *Aphasia a glossolysi* (*Sauvages*).—Lingual palsy is the most frequent cause of loss of speech, and is mostly connected with deep-

[a] Sauvages Nosolog. Method., Tom. i., p. 777.

[b] Edin. Monthly Journal, Jan, 1867.

[c] Joseph Frank, Prax. Med. Precep., Tom. iv., p. 75. French translation by Bayle.

[d] Sauvages loc. cit.

seated cerebral lesions. Romberg describes two forms, *glossoplegia masticatoria* and *articulata*.[a] The lesion in the encephalon takes effect upon or near the origin of the hypoglossus nerve, between the olivary and pyramidal bulbs. Lingual palsy may sometimes begin in the peripheral extremity, namely, the substance of the tongue: and in Bell's paralysis, the portio dura may be engaged after its transit from the cranium, affecting the pronunciation of the labial letters, and generally blunting articulation.

Having thus briefly noticed certain varieties of loss of speech, which are not to be confounded with Aphasia *proper*, we proceed to consider the latter in its relations to the cognitive faculties and the operative mechanism. The disorders of speech connected with the former, without including the speechlessness of profound coma, may be ranged under two heads; (1) those wherein the intellect and the memory of language are obscured alike, and (2) those in which the intellect has originally suffered less than verbal memory, or has righted itself, while the memory of words has remained impaired. The first of these states of oblivion of words cannot strictly be considered aphasia, for utterance is mostly perfect, and a species of talkativeness often present, but language has ceased to be used with precision. Softening of the brain, involving the vesicular and fibrous structures is going on, the intellect grows weaker day by day, and language, its reflex, has no relevance. Memory fails in its relations of time and place; judgment can no longer clasp the links of thought, and sensations leave but faint traces in the sensorium. Such, in fact, was the state which Swift felt creeping on himself when he mournfully predicted that his fate would be to "die at top," the uppermost branches withering before the trunk was dead.

We mentioned above that to each of the typical forms of aphasia there was a cognate state from which at times it was hard to draw the line incisively. In the incipient stage of brain-softening, wherein the impairment of intellect and that of verbal memory proceed *pari passu*, we have a state not always distinguishable from the psychical type. The signs to guide us are the nature and degree of the disorder of the faculties, and whether language be more obliterated or pointless.

The second state of amnesia, in which the mental faculties are much less injured than the memory of words, is the chief province of the present disease. To estimate the loss sustained by the

[a] Romberg Dis. Nervous System, Vol. ii., p. 302.

intellect in each case, the state of the faculties one by one should be noted. Are sensation and perception damaged? We present some familiar object to the senses of the person, and we infer from the animated glance with which it is recognized that those faculties are not materially defective. Is the memory of words weakened? We ask the name; an effort of recollection is made, evidently painful; it fails, and the poignant distress thereby caused is too obvious for mistake. We suggest the missing name; joy at recovering it beams forth again in the countenance, and words not occurring, gestures, such as "nods, and becks, and wreathed smiles," are had recourse to. In the same way as in the presentative faculties, the functions of abstraction, judgment and reasoning, should be tested. The wider the contrast between the retained faculties and the lost speech, the nearer the approach to aphasia.

M. Jules Falret, in his elaborate summary, has tried to compress, under three categories, the chief forms which aphasia assumes, but his conditions seem rather too crowded for clearness. They admit of a succinct classification under the following subvarieties:— (1) Partial loss or perturbation of the memory of oral language, without any other change. (2) The same state of oral speech with ability to repeat the missing word, when suggested, but inability to write it. (3) The same state of oral speech as the first, with inability to repeat the word, but ability to write it. (4) The same state of oral speech, with inability both to repeat and write the missing word. (5) Total loss of oral speech, retaining ability to write. (6) The same, with inability to write. (7) Degeneration of speech into inane phrases or mere monosyllables. In practice these states often merge into each other.

Some of the varieties of erratic speech are curious. Crichton gives a case in which one letter, in a word, was substituted for another. It occurred after fever. The patient, a German, wished for some coffee (in his language, kaffee), but instead of f, he put z, so that instead of asking for coffee, he asked for a cat (kazze). In every word which had f, he made a similar mistake.[a] I have a patient who substitutes d for n, calling neck "deck," &c. Villermay cites a case where the position of the letters was altered, as tufle for flute.

Words are sometimes misplaced, the person having a consciousness of the mistake, but becoming bewildered at the moment. A

[a] Inquiry into Mental Derangement. By A. Crichton, M.D. Vol. i., p. 373.

lady, Mrs. H., who afterwards died hemiplegic, had this peculiarity. She took a pride in her domestic *ménage*, and being desirous to tell her visitors that three of her servants had been comfortably married out of her house in 27 months, used to invert the figures, saying that 27 servants were married from her house in three months; and then seeing the incredulous stare of her hearers, she would perceive the blunder, and burst into a good-natured laugh at it. In the interesting case detailed by Dr. Banks, from the practice of Dr. Kidd and himself, some odd substitutions of words are given, one in which the gentleman fearing that his watch would fall out of his pocket and be broken, called out, "Take care of the break-fall."

Some examples of stock phraseology are amusing. One form of it is repetitive or cyclical. It consists in the unvarying utterance of the same word, or set of words—sometimes intelligible, sometimes not. A few years ago I had a case of this sort, in which the patient used to let off, at short intervals, like minute guns, the announcement, "My name is Cody." When a person, not in the secret, came near the bed, it created a flutter of surprise to be saluted with this formula of introduction. In another case the only words spoken were, "Where's my daughter?" the poor woman having been told suddenly that her daughter was dead and dissected; though she comes to see her once a week.

In some extreme cases language is confined to monosyllables. A woman named Jennings was for six or seven years in the Union Hospital with right hemiplegia. Her whole stock of words was "yes," "no," "too," and "oh God," which she uttered with various cadences to make herself intelligible.

The use of oaths in aphasia has been often noticed. I have now a patient in the infirmary whose answer to every question begins with "Oh! Begorrah!" After ejaculating this oath with great confidence in his powers of speech, the poor man comes to a full stop, ponders for the next word, and failing to find it, ends by making a frantic tug at his hair. Dr. Falret thinks that swearing occurs chiefly in emotional states. This is, I believe, often the case, but it also depends on the use of oaths as by-words from early habit. In odd persons the habit of strange by-words is regarded suspiciously as a flaw in the intellect. J. Frank had a patient who unceasingly intercalated in his conversation the words, "hedera federa;" and the late very learned but very eccentric Vice-Provost Barrett could not utter a whole sentence without interpolating the by-word, "d'ye see me now?"

Coming now to the Executive division of the speech-process, we have first to consider its psychical part, viz., the will and the emotions, and their pathological conditions in aphasia. First, the autonomy of the will over the economy, not including its moral aspects, has a threefold relation—it directs thought, it originates muscular action, and it curbs the passions and emotions. Thus, we are conscious that by willing it we can make the mind take up, or lay down, any train of thought—that we can continue, or forbear, at pleasure, any muscular act, and, guided by reason, that we can keep our feelings in check, if we try. Now in each of these three functions the will is weakened in aphasia.

First, in its especial relation to the memory, namely, setting it to work to recollect things, and to judgment in its property of fixing attention upon the succession of thought—it becomes weak in purpose and desultory in application. Secondly, in its function of initiating muscular action, the will fails, at least in the *second* form of aphasia, to compel the muscles of articulation to act. Lastly, in its office of regulator of the emotions, the will is seriously compromised in aphasia. The emotions are good servants, but bad masters, and when the dominion of the will over them is weakened, they act despotically on mind and body. Locke had the sagacity to notice their power over memory. "Ideas are very often roused and tumbled out of their dark cells into open daylight by turbulent and tempestuous passion."[a] Some phenomenon like this occurs in the case of language in aphasia. Words start up unbidden under strong emotion, which are difficult to be uttered during moments of composure. The difference of emotional language in this respect has been described by Dr. Hughlings Jackson. Indeed, the influence of the emotions on language has engaged the attention of philologists; and Messrs. Wedgwood and Farrar have sought the origin of the primitive roots of language in interjections uttered in bursts of emotion.[b] "Interjections," says Horne Tooke, "are only employed when the suddenness and vehemence of some affection or passion returns men to their natural state, and makes them for a moment forget the use of speech."[c] The power of emotion in breaking off speech abruptly is well known to our great poets.

The singular change which passes over the feelings in paralysis was well described by Van Swieten. "I have seen the wisest men

[a] Locke on the Human Understanding, Book 2, § 10.
[b] Max Müller on the Science of Language, p. ix.
[c] Div. of Pur., p. 32.

and the bravest soldiers, in whom the masculine strength had become so enervated that, like a pouting child, for the slightest cause they would burst into tears."[a] It is asked whether these immoderate emotions occur most in aphasia, or in hemiplegia without aphasia. Dr. Trousseau thinks that in aphasia the emotions suffer but little change. Perhaps this is too strongly expressed. In one of the worst cases that I have seen of aphasia—that of Jennings—the emotions were uncontrollable. Van Swieten speaks thus of Malpighi, the famous anatomist, who died of right hemiplegia:—" Magnam in memoria et ratiocinio læsionem habuit, et quavis minima de causa lacrymabatur."[b] I have made a table of twenty hemiplegic cases in a large hospital for three months. In eleven the right side was affected; in nine the left. Of the eleven right hemiplegics five had no undue emotions, four had them slightly, and two very much. Of the six last mentioned, weeping occurred in all, laughing absurdly in three. Of the five not affected, two showed great lesion of speech, while three had only thickness and slowness of utterance. On the other hand, one of the two immoderate cases was quite aphasic, the other not; and of the four slightly affected, one was completely aphasic, the rest very little so.

Of the nine cases of left hemiplegia one was quite aphasic, eight not. The emotions were normal in two, the others were variously affected. Two of the seven both laughed and wept upon trivial causes, three cried but did not laugh, and in two laughing only occurred. Of the twenty cases, eighteen were females. This table, as far as it goes, supports the inference that in left hemiplegia the emotions are mostly disturbed, whereas in right the disturbance is less. The case of left hemiplegia with aphasia evinced both kinds of emotion, but not very much. In right hemiplegia there was no obvious connexion between emotional force and loss either of speech or motor power.

We proceed, lastly, to the somatic or mechanical part of the Executive process, with which the volitional impulse must be placed *en rapport*, in order that the thought complete in words may be set in motion. Loss of verbal memory does not meet the cases in which the person cannot speak, but can write. There is a broken step in some part of the ladder; and pathologists, in reviewing the stages of the cerebral mechanism of speech, are not agreed about the

[a] Van Swieten on Boerh. Tom. iii., § 1018.
[b] Van Swieten loc cit.

defective part. The first hypothesis in physiological order, supposes a failure in the voluntary transmission of the thought-speech to the motor centre. A breach of continuity is presumed to take place in the white medullary substance, whose function is internuncial, with the effect of intercepting the words *en route* from their potential origin in the convolutions. Hence the intimation from the will not reaching the motor centre, the organs of speech make no response. This is the theory of *defective transmission;* and the powerful objection against it is, how can the speech-message be conveyed to the writing-hand, when it is stopped on its way to the muscles of articulation? To meet it, different sets of conducting fibres are supposed, or different centres of co-ordination, one for the muscles of speech, and one for those of the hand as a writing organ. Dr. A. Robertson,[a] a very able advocate of this view, considers that the inability to speak is essentially a motor and not a mental defect, and hence not amnesic. His argument against amnesia runs thus:—Language is necessary for reasoning; reasoning exists in aphasics, therefore language exists in aphasics—a conclusion apparently at issue with general experience. Words are certainly necessary for *expressed* ratiocination, and are most important adjuncts to the operations of thought; but I believe that we can mentally think or reason about a thing, though the name may have escaped us for the moment, the mind tacitly putting some vague expression to stand for its recollected meaning, like the algebraic x. Further, the substitution of words and the degeneration of language, so simply explained by want of memory, are on this theory accounted for by the deflection of the words from their course in consequence of the damaged fibres, and the transmutation of them into those words which travel most frequently along the road. This ingenious supposition does not explain how the missing word can be repeated with ease when suggested.

The hypothesis next in order presumes *a change in the co-ordinating motor-centre for speech-movements.* Should we not, in such an event, expect to find a spasmodic and inharmonious action of the muscles of speech, such as the muscles assume in chorea? This question is one, however, that merits the most ample consideration.

A third mode of interpretation suggested by Dr. Osborne in 1833, and held also by M. Baillarger, is *the loss of the memory of the movements necessary for articulate language.* Dr. Osborne

[a] Journal of Mental Science, Jan., 1867.

argues that the art of speaking is a voluntary process acquired in early life, every syllable requiring a distinct muscular act, which the child learns slowly, but executes rapidly on repetition. Dr. Osborne uses an illustration taken from Locke, that of an expert musician, who, though each note needs a separate stroke of the keys of an organ, and each stroke is a muscular act, yet plays on in train, though his thoughts may be wholly preoccupied.[a] This is automatic; the will is directed to the *first* note, and the rest follow in the series, the separate volitions, once required, being now suppressed ("dropt volitions"), the intervention of the will being no longer needed, though a preliminary in all successions. Indeed, the effect of attention being suddenly directed to the steps of the process, puts it often astray. It is objected how could we ever recollect all the movements necessary for speech? In fact, we do not trouble ourselves to think of them. When we write, every letter of the word is an act of voluntary thought and movement, but so rapid from habit that nobody thinks of it as such. Dr. Osborne inferred that the peculiarity in his unique case lay in the sudden oblivion of the whole art of speaking, which is so carefully learned in childhood, all other requirements being normal. The only mode of treatment is to begin *de novo* to re-establish the autocracy of the will.

We mentioned above that there was also an allied state sometimes hard to be distinguished from the second typical form of aphasia. It is the complication with paralysis of the articulating organs. It becomes hard to assign how much may be due to the cerebral source of loss of speech, and how much to the local palsy. The following extreme case of glossoplegia has some features resembling the standard case given by Dr. Osborne:—

Mr. J., aged thirty-five, when a medical student, seven years ago, got right hemiplegia. He was admitted into the Infirmary at the end of 1866. Speech is utterly lost; fingers of right hand rigidly flexed; whole limb is cold, and hangs down; right leg allows imperfect progression; deglutition affected; he can only swallow food in a semi-solid state; tongue tremulous, and protruded slowly and laboriously to half its usual extent. On laughing he utters a hoarse sound like a person choking, with spasmodic sobs. His intellect is not much impaired; sight and hearing good; memory of words not injured. He is fond of reading, and can write correctly

[a] Locke, Book ii., ch. 33. On Association.

with the left hand; but from not being used to it, he prefers dictation. He does this by means of a printed alphabet, and he spells so rapidly by the finger the words which he wants written that it requires practice to follow him. His letters are expressed with clearness and point. The emotional powers are undisturbed.

Having endeavoured to describe the pathological characters of aphasia, we shall say a few words on its presumed seat in the brain.

It is not easy to discover the period when the special faculties of the mind were first allocated to distinct parts of the brain; but we find the germs of phrenology in the opinions of Theophilus and the Arabians, who placed phantasia, or the presentative faculty, in the anterior lobes; discursus, or cogitation, in the middle; and memory, as the lowest faculty, in the posterior.[a] Dr. Gall located the intellectual powers in front; the moral sentiments in the coronal regions; while he relegated the animal passions, &c., to the posterior lobes. Remarking that a full, prominent eye co-existed with a facility of acquiring languages, this acute cranioscopist placed the working organs of speech in the convolutions resting upon the orbital plates, and the memory of words, &c., in the posterior part of the same. That very thoughtful and suggestive writer, Sir Henry Holland, long ago hinted that an excellent way to test phrenology would be to select some simple faculty, such as *language*, or music, or number, which has no opposing influence, and whose perfection can be attested.[b] It is curious how this suggestion of Holland, made thirty years ago, about language, as one of the three tests most applicable, should be that which M. Broca now represents as discovered. If verified, it will undoubtedly prove the *πού στῶ*, or stand-point of other discoveries.

We mentioned above that the merit is due to M. Bouillaud for seeking *practically* to fix the cerebral seat of speech, or, as he terms it, "*le pouvoir législateur de la parole*," in the anterior lobes. During forty years of medical life, he has accumulated some hundreds of cases tending to show that in lesions of the anterior parts of both hemispheres speech is impaired, and *e contra;* when this faculty seriously suffers, the diagnosis of lesion of the anterior, and not of the middle or posterior lobes, may be made unhesitatingly. That this dogma is untenable has been urged by many, amongst others by M. Andral, who found that in thirty-seven cases of disease of the anterior lobes,

[a] Avicenna lib. 1, can. fen. 1, Tr. 6. Averrhoes Collig. 2, 20.

[b] Med. Notes and Reflections, chap. 30.

speech was abolished twenty-one times, and retained sixteen times. On the other hand, of fourteen unequivocal cases of loss of speech, seven were associated with lesion of the middle, and seven of the posterior lobes.[a] It was supposed that traumatic injuries would decide the point more veritably; and M. Velpeau cited a case of great organic destruction of the anterior lobes by a tumour, without loss of speech. As the man was a barber, his retention of speech may not be quite conclusive. There are, in our own literature, some curious cases which sustain M. Velpeau. Mr. O'Halloran gives an instance in which a large quantity of the right anterior lobe was destroyed by suppuration, yet the patient retained his speech and faculties to the last, having lived seventeen days.[b] A still more remarkable case is described by the late Surgeon-General Crampton.[c] In 1818, Mr. H. Brougham, aged eighteen, nephew to Lord Brougham, received a gun-shot wound in the forehead, which exposed the anterior lobes. "In cleansing the wound, scarcely had three drops of water fallen on the part when he cried out:—'Oh! don't! Oh! what's that?' I asked him," says Sir Philip, "if I had hurt him? He said 'I do not know, but the sensation is dreadful.'" This great wound of the frontal convolutions healed up in time, leaving a depression, which pulsated like the fontanelle of an infant. Yet this gentleman, so far from losing his speech, took holy orders in the Church, and became a most efficient preacher.

M. Marc Dax, in 1836, is well entitled to the credit of being the first to show that in loss of speech, the lesion mostly exists in the left hemisphere, and that, should hemiplegia be present, it engages the right side, and seldom or never the left.[d] It cannot be denied, that to assume for the faculty of speech a unilateral seat in a bilateral organ shocks our preconceived notions, and can only be settled by experience. But as we must, from our very nature, theorize, we are pressed to admit one of two conclusions—either that this faculty is strictly limited to the left half of the brain, while the necessary motor acts are consensual at both sides; a theory which is opposed to the argument from analogy, that parts which correspond in relation and sensible qualities, correspond

[a] Clinique Med., translated by Spillan, p. 118.

[b] Disorders of the Head. By S. O'Halloran, M.D. Case 17, p. 103.

[c] Dublin Journal of Medicine, Sept., 1832, p. 42.

[d] Dr. Sanders has noticed, as peculiarly appropriate to amnesia, the passage from Virgil, viz. :—"Memini, si verba tenerem," which M. Dax takes as a motto for his work. It would be so, but that, unfortunately, the word "*numeros*" is omitted by M. Dax. In Virgil it means :—"I remember the music of the Idyll, but I forget the words."

also in function; or, secondly, that the situation of the centre of speech in the left hemisphere implies a great preponderance of that side of the brain over the other in their working capacities, just as we speak, in mercantile phrase, of the acting and sleeping partners in a firm. This latter possibility has been ingeniously defended by Dr. Moxon.[a]

Of the nine cases of left hemiplegia above noticed by me, eight had no defect of speech worth notice, the ninth was quite exceptional.

Margaret Neil, aged forty-five, was admitted to the infirmary, January 31, 1867. She had total hemiplegia of the *left* side, anesthesia, and loss of speech. Emotions greatly disturbed. Omitting details, the state of her speech eight weeks after admission was as follows:—pronunciation very good; she articulates long words, as "Constantinople," perfectly, and with the proper syllabic accent. Her memory of words is much injured; when shown familiar objects, she seems trying her best efforts to recall the name—"'tis ah! 'tis ah!"—and gives it up. On suggesting a name not that of the object, she gets offended—crying out:—"Ah! no." On hinting the missing word, she is pleased, repeats it distinctly, but soon forgets it again. In her replies to me she says "Yes, ma'am," or "No, ma'am," much to the amusement of the students. Asked to tell her name, she pauses, and replies:—"I can't tell it, but I know it;" on prompting her, she repeats it with a laugh. She cannot calculate beyond twice two, and has lost the power to read. She cannot *commence* the series of months, but when January is mentioned she goes on pretty well, with a gap here and there. At the present time (July 1st), her memory of words has much improved; she is able to walk, the left arm has also partially recovered. In this case the two kinds of memory are to be distinguished. She *recognized* the word wanted, when it was suggested to her, but could not *reproduce it.*

It is to be regretted that collections of cases, like those of Dr. Bright, do not assist us much, the state of the faculty of speech not being always given. As far as they go, they support the more constant connexion of dextral paralysis with loss of speech. He gives, however, five cases of left hemiplegia, viz.:—cases 85, 140, 145, 158, 160, in which speech was involved.

The next forward movement was made by M. Paul Broca, in

[a] Med. Chir. Rev., April, 1866.

1861, and was more a stride than a step. His doctrine fixes with more rigorous precision than that of M. Dax, the seat of aphasia, namely, the third external or inferior frontal convolution of the left side of the brain. In this he not only accords with M. Dax in giving speech a unilateral seat; but his dissections have led him to localize it in a gyrus as far removed as possible from the right hemisphere. Were we to estimate the preponderance of the left over the right hemisphere in speech-power, by their distances from Broca's convolution as centre, measured inversely by their squares, it might give us something tangible. But all vain speculations must bend to practical facts.

The following case bears on M. Broca's views:—

Mitral Disease—Hemiplegia—Aphasia—Death from Pneumonia—Embolism.—Mary Murphy, aged sixty, was admitted to the Union Hospital, April, 1865, with right hemiplegia and defective speech. She was in hospital various times during eighteen months, so that her speech was tested from time to time. The memory of words was very defective and the articulation confused; for "thank you sir," she said "fancy sell," and being asked what her husband, a pedlar, sold, replied, "procties and pudding-pans," which we found out meant "brooches and bosom-pins." It was found that she had stenosis of the mitral valve, leading to the supposition of embolism as the cause of the paralysis. The right arm was rigidly flexed, the leg was weak, but allowed her to walk with a stick, the emotional powers very much disturbed, the intellect tolerably clear, especially on money matters. In hospital she went by the name of "the serjeant," from the state of discipline in which she kept the patients, using her stick on occasion. We could not test her by books, as she could not read; some words she constantly misapplied. Her attempts at speech utterly failed to convey any meaning. She died of pneumonia after a few days' illness. The right lung was much hepatized; the heart covered with fat; the left auricle contained a decolourized clot moulded to its walls; buff-coloured plugs extended for two inches into the pulmonary veins, and similar emboli blocked up the right cavities and pulmonary artery. The mitral orifice was narrow, its margins ossified, vegetations were on the auricular surface, the aortic valves were sound. There was much effusion of serum under the arachnoid membrane, the right hemisphere was healthy, except some venous dots sprinkled over the centre of Vieussens, and a little fluid in the ventricle. On careful examination of the left hemisphere, the convolution of Broca was

softer in consistence than the neighbouring parts, and the remains of an apoplectic cyst, of the size of an almond and empty, but with erosion of its floor, was situated close to the anterior third of the corpus striatum and running parallel to its course. No emboli were found in the cerebral arteries. The preparations were laid before the Cork Medical Society.

These remarks would be imperfect without alluding to a point so much contested as the name. The term Aphasia, from its simplicity and softness of sound, has come into such general favour that it could not now be changed without much confusion. It is a poetic word used by Homer and Euripides (Sophocles nowhere employs it), and by prose writers, such as Herodian, is applied to collective bodies; but in no place does it mean more than a *temporary* failure of words under strong emotion. None of the great medical writers have applied it to loss of speech from disease. The luxuriance of the Greek language was such that as many as ten or more verbs were formed to indicate the delicate shades of expression, but the terms most in use amongst the Greek physicians for loss of voice and speech, were Aphonia and Anaudia, which were sometimes, as Cælius Aurelianus tells us,[a] interchanged, but the latter word was more usually applied to a loss of the power of speaking, in which sense it occurs in two passages of the Septem Contra Theb. of Æschylus.[b] Sometimes loss of speech or of voice was expressed by a periphrasis, such as "apocope vocis," or "abscissio," or "amputatio vocis," as was used by Avicenna. As to the other names they need not detain us long. The Aphemia of M. Broca is a word not in use, and rests, according to R. Stephens, on questionable authority. His Aphrasia is also a coinage, and would imply a defect in grammatical more than in physiological speech. Alalia is a favourite in France. It does not occur in any Greek writer, or in any lexicon that I know of, except Brunck's on Sophocles, and then in a different sense; its adjective, alalos, *dumb*, occurs in the Greek Testament[c] and in Æschylus, and its simple word, lalia, means more the subject and form than the power of speech.[d] Lastly, of Aphthenxia as a fit epithet for loss of the ability of utterance, I have already spoken in the number of this Journal for November, 1865.

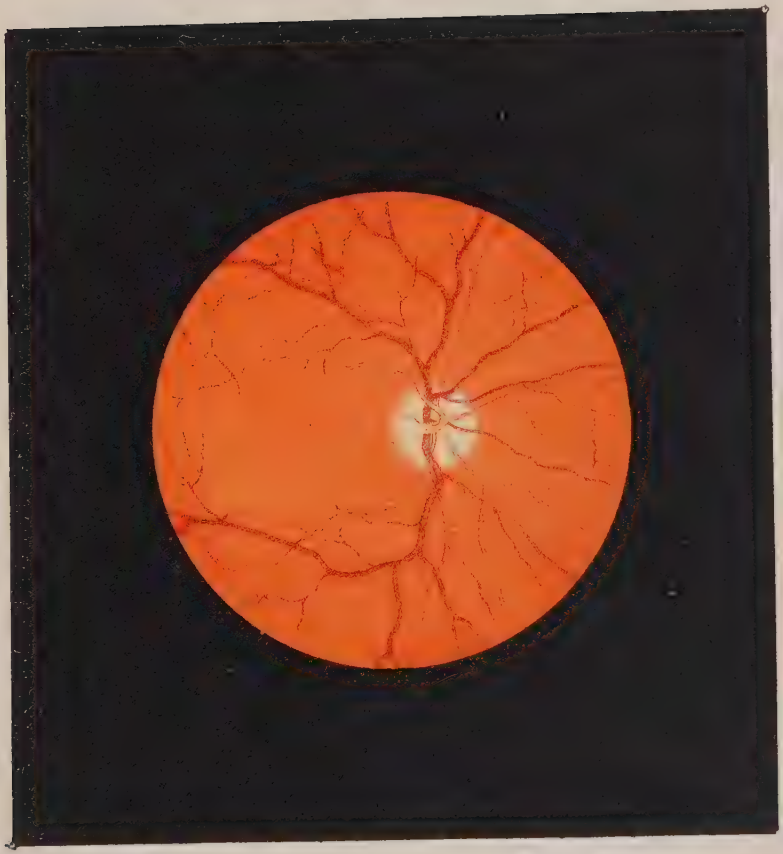
[a] Cæl. Aur. de Morb., p. 96.
[b] V. 82 and 892, and Blomfield's Glossary.
[c] Mark ix., 17.
[d] Matt. xxvi., 73.

In conclusion we owe M. Broca much praise for directing attention to a subject too much forgotten. Careful investigations in the present direction must lead to new discoveries upon the whole subject of language.

ART. II.—*On the Examination of the Eye with the Ophthalmoscope.* By HENRY WILSON, F.R.C.S.; L.K. & Q.C.P.; Member of the Royal Irish Academy, &c., &c.

IN order to examine the interior of the eye with the ophthalmoscope, it is necessary to have a suitable illumination in a darkened apartment; any ordinary oil lamp with its globe removed will answer the purpose; all that is required is a steady broad flame; it need not be very large or very brilliant; on the contrary, I would rather recommend a subdued light as being more grateful to the patient and more suitable for the recognition of the finer details. We may be occasionally compelled to employ a candle, but it affords too small a body of light, and its flame is too unsteady and too narrow for a satisfactory illumination, or for general use. When I am called on to examine patients at their own homes, I generally bring with me the little lamp of Smith and Beck's fixed ophthalmoscope; a conveniently small and portable lamp for ophthalmoscopic purposes is much to be desired. The lamp I habitually employ, both in my own house and in the Richmond Hospital, is a German reading lamp, with its shade removed; as may be seen in Fig. 1, that part of the lamp which carries the flame is movable on an upright stem, so that the light may be fixed at any convenient height, or any desired position. Gas affords a most excellent source of illumination; but the flickering and unsteadiness common to gas jets should be prevented; the steadiest ordinary gas jets are those supplied by dry meters. The best form of gas bracket I am acquainted with is that which I had put up in St. Mark's Ophthalmic Hospital in 1859, similar to the one used in the Royal London Ophthalmic Hospital. It has an argand burner closed beneath with fine wire gauze, which equalizes the supply of air and causes a uniform draught and a steady flame. The bracket possesses universal motion, and the flame always remains vertical in consequence of a parallel rod attached to one of the arms. This lamp affords likewise one of the best sources of artificial illumination for laryngoscopic or aural examinations, and may be supplied with metal chimneys, perforated

PLATE I.



Morison, Lith. Dublin.

in any desired manner. For ophthalmoscopic purposes it is well to have the glass chimneys faintly tinged with blue, so as to modify the light. The flame should occupy a position behind the examined eye, so that its rays shall not directly impinge on the eye. I prefer, as a rule, having the light in one given position—a little above and behind the middle of the patient's head; others, however, prefer the light behind and to the side of the patient's right ear; and this position is probably the best where the examiner uses his right eye only. All direct sunbeams or other light which might interfere with the rays going to or from the examined eye, must be avoided. It is, however, not necessary that daylight should be completely excluded; a small amount of diffused and modified daylight may be present, and will be found very convenient. Sunlight is also employed in ophthalmoscopy, but principally in warm climates, and where the facilities we possess in our cities cannot be had. It is admitted through a circular orifice in the window, shutter, or door, or reflected by a plain mirror into the darkened chamber through the open door or window.

The eye should always be first examined without dilating the pupil artificially, as there are various objections to the latter proceeding. When the patient sits with his back to the light for a few minutes in the darkened chamber, and regards some distant object, the pupil will generally be found sufficiently dilated naturally for an experienced examiner to see the fundus, and to ascertain, in a large number of instances, the cause of the impaired vision. If, however, the pupil remain too small, or it be desirable or necessary to obtain a view of the whole of the lens or of the fundus, it can be readily dilated at any time; for the purposes of teaching, demonstrating, or learning also, it is well to have the pupil dilated; the substance used for the purpose is belladonna or its alkaloid atropia, the latter being preferable on account both of its activity and its cleanliness; half a grain or a grain of sulphate of atropia to the ounce of distilled water will suffice to dilate the pupil in healthy eyes in about half an hour (the strength of the solution I generally employ in diseased conditions of the cornea, iris, or lens, is one grain to the drachm). Where much inconvenience may arise, or cosmetic effects demand it, the pupil may be again contracted by a solution of the extract of Calabar bean.

Prior to studying on the human eye it is advisable to practice ophthalmoscopic illumination of other objects. The beginner should take the plate representing the arteria centralis retina in

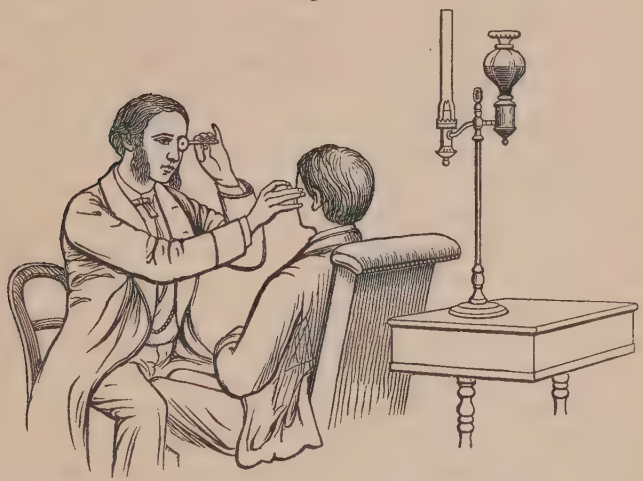
Gray's Anatomy, or the accompanying chromo-lithograph, place it upright in front of a lamp or candle, so that it shall be in the shade, and then practice illuminating it from various positions, with and without the interposition of the lens, and with each eye alternately. Rabbit's eyes afford an easy and a beautiful object for study; the fundus in these animals differs, however, from that of the human eye; the eyes of persons, who are completely and incurably blind from cerebral disease, may be selected by the beginner, with advantage to himself, and without inconvenience to the patient; highly myopic eyes should also be selected, as the fundus becomes very readily visible.

The following observations refer, in particular, to the examination of the reversed or aërial image with Liebreich's small ophthalmoscope. The patient should be comfortably seated beside or with his back to a table, on which the light is placed; he should hold his head fully erect in one fixed position, and not move it about from side to side. The examiner should occupy a seat a little higher than that of the patient, and have his eyes on a somewhat higher level than those of the patient; he should also fairly front the observed. The distance between the two faces must depend on the refractive condition and the power of accommodation of both eyes. When these are normal it will be about eighteen inches—a short and convenient distance. I myself prefer standing in front of the patient for short examinations, and having the patient's head slightly inclined backwards, with the light vertically above and a little behind it. When dexterity and facility in examining have been acquired, this method affords many advantages; it allows of greater control over the patient; the examiner can move more readily in all directions, practice oblique illumination, and examine a number of cases in succession more expeditiously.

All preliminaries being now arranged, and the left eye the one to be examined, the transparent media are to be observed by oblique illumination; and when it has been ascertained that these are transparent, the mirror is to be applied into the angle formed by the eyebrow and nose on the left side somewhat in the same manner as an eyeglass; the central aperture in the mirror should then be opposite the observer's pupil; the handle of the instrument is to be held horizontal, its extremity being grasped somewhat in the same manner as a flute between the thumb below and the three first fingers above; the little finger should be free, project beyond the handle, and be held erect, as shown in Fig. 1. The upper

arm may be retained at the side, or, as in the cut, project from and be at right angles with the body. While being kept close pressed into the angle between the nose and eyebrow, the mirror should be moved vertically by rolling the handle between the fingers and thumb, and horizontally by movements of the handle backwards and forwards until the light is made to fall on the eye under examination. It is most important to recollect that the patient and examiner must retain their original facing position.

Fig. 1.



The right or non-examining eye may be kept open so as to control the patient's movements and the proper position of the reflected light; it should, however, be occasionally closed, so as to make sure that the left or examining eye is looking through the ophthalmoscope opening. When the patient is unsteady it is advisable, in the beginning of the examination, to place the open right hand on his head, so as to keep it in the erect position, and prevent its moving. The examination having proceeded thus far, and the eye being now fairly and steadily illumined, the observer should perceive a brilliant red glow behind the pupil, which will be fixed or transitory according as the illumination or position is properly maintained or not. The patient is now desired to regard (without moving his head) the point of the observer's erect little finger, and when he has done so the red brilliancy will assume a somewhat white character, which indicates that the optic nerve entrance is then in the exact visual line. While the patient keeps

steadily regarding the point of the little finger the examiner takes one of the large convex lenses—two inch focus—between the finger and thumb of his right hand, and holds it about two inches in front of the eye in such a manner that the rays from the mirror shall traverse it before entering the examined eye; the hand carrying the lens may be steadied by resting the little finger on the malar bone or brow of the patient. The iris should not enter into the formation of the visual field; the lens must be moved to and fro until the image of that membrane and its pupillary margin disappear altogether, and nothing remains but the circular bright red field. These directions being followed, and the patient's and examiner's eyes being normal, the latter should perceive the image of the fundus, as shown in Plate I. In regarding this image, its position between the lens and the observer should not be forgotten, and the latter should, therefore, not endeavour to look through the lens, but should accommodate or adjust his vision for a near distance, and suppress the vision of his right eye. The lens must be moved from or approximated to the observed eye, or moved on its axis until the greatest degree of distinctness in the image is obtained; it must also be held quite vertically (to the axis of the eye), as otherwise inaccuracies, deceptions, or distortions may arise, which would lead to erroneous conclusions.

The entrance of the optic nerve into the eye is not exactly in the optic axis, but a little below and to its inside, having the yellow spot external to and on a level a little above it; the patient's eye must, therefore, be turned inwards and a little upwards, in order to bring the optic disc into the visual line, and the point of the erect little finger affords the most convenient and generally the best object for fixation. When it is wished to observe the position of the yellow spot or its vicinity, the little finger is closed, and the index finger is raised close to the mirror for the patient to regard; in this manner each finger may be raised successively, and a prolonged and steady examination made of the most important portions of the fundus. The little finger may be armed with a bright polished metallic thimble, which will readily attract the attention of amblyopic[a] persons.

In the examination of the right eye the proceeding should be

[a] The term *amblyopia* is used to denote *impaired vision*, attributable to any cause other than anomalies of refraction. *Amaurosis* is now almost exclusively used to denote *total blindness*, without even perception of light (dependent generally upon cerebral disease).

similar to that just mentioned, except that the ophthalmoscope is to be held in the right hand and to the right eye, and the lens in the left hand. We should in all instances make a comparative examination of both eyes.

I would particularly recommend this mode of examination to all who have equal vision in both eyes; it affords great facilities; the optic papilla comes into view the moment the patient regards the point of the extended little finger, and the hand carrying the lens is never in the way. When from imperfect vision in one eye, or other cause, the examiner can only use one of his eyes, he should have the light placed beside and a little behind the patient on the side of the examining eye, and direct the patient to look inwards and a little upwards towards the examiner's ear; thus, if the right eye be the examining one, the light is to be placed on the patient's left side, no matter which eye is to be observed; and if the left be the examining eye the light should be on the patient's right side; the ophthalmoscope is to be held by the hand on the same side as the observing eye, and the lens in the opposite hand; by this means the illuminating rays are not intercepted. Where the patient is quite blind, or from other cause cannot fix his vision on the little finger, or in children, the examination is more difficult; in the case of adults the individual's hand may be placed in the wished-for position, and the person desired to look towards it; in the case of children the parent or attendant should occupy the position the child is to regard, and attract its attention by speaking to it, or holding up a watch or other bright object. If we fail by these means to obtain a view of the optic disc, we must alter our position. While the patient retains his head erect, and looks straight in front, the observer moves to the temporal side of the eye under examination, and getting about a three-quarter view of the patient's face, illumines the fundus in that position, when he will, as a rule, be able, with some little difficulty, to obtain the desired view. Where the eyelids are not opened sufficiently wide, the upper lid may generally be raised by the two middle fingers of the hand carrying the lens, these being disengaged while the thumb and index finger hold the lens, and the little finger rests on the malar bone. It should be our object, first, to obtain as extensive and general a view of the fundus as possible, so that any isolated irregularity or lesion will present itself at once as contrasting with the surrounding parts; and we should endeavour to have the optic nerve forming the centre of the picture. A slightly

concave, or even a plane mirror, and a convex lens of $1\frac{1}{2}''$ focus will give the desired results. Subsequently the individual portions may be magnified by low-powered object lenses, such as those of $3''$ or $4''$ focus, or by magnifying the aërial image by a convex ocular lens inserted into the clip behind the mirror.

The beginner must guard against being led into error by the *reflections* which are caused by the cornea and the convex lens; these reflections are at all times more or less present, and are sometimes very embarrassing. One of these reflections is a small but exact image of the ophthalmoscope mirror, and is liable to be mistaken for the optic disc. It may, however, be distinguished from this by the dark spot in the centre, answering to the orifice in the mirror, by the absence of vessels and by its position; these reflections may generally be obviated by slight movements of the lens on its axis, and to and fro. Occasionally a thread or film of mucus adheres to the cornea, and simulates, at first sight, an opacity in the transparent media; when such occurs it must be removed by gently rubbing the upper lid over the globe.

The student must not be discouraged by getting mere momentary and passing glimpses of the optic disc. It requires considerable practice before we are able to obtain a steady and prolonged view of the parts. When the disc comes into view, and then suddenly disappears, it is attributable to some movement or unsteadiness on the part of either examiner or patient—most frequently, I think, of the former. When in searching for the optic papilla, a vessel comes into view, it should be steadily regarded and traced backwards in the direction of its increasing thickness, until finally the papilla is found where the vessel appears to terminate.

As I have already explained, the convex object lens produces the inverted image; and in reference to this image Mr. Carter, in his excellent translation of Zander's *Augenspiegel*, or rather his new, improved, and annotated edition of that work, says:—"In order to understand clearly the effect of the inversion, it is well to take a piece of thin writing-paper, and to draw upon it a circle to represent the fundus of the left eye of a person placed opposite to the spectator. The circle may be surrounded by the letters Na Su Te In, so arranged as to indicate the superior, inferior, temporal, and nasal boundaries of the figure. To the nasal side of the centre a small circle may be drawn for the optic disc, with lines radiating chiefly towards the

temporal side to represent the blood-vessels. The sketch, as it stands, will give an idea of the erect image, with its temporal side to the right of the spectator and the vessels passing to the right. If the piece of paper be turned bottom upwards, with the written side still towards the spectator, the ordinary conditions of the inverted image will be fulfilled, and the inversion of all parts will be complete."

The accompanying chromo-lithograph, copied partly from Jaeger's *Beiträge zur Pathologie des Auges*, gives an idea of what the student is to look for; it represents the inverted image of the fundus of a healthy left eye, of a dark-complexioned adult. Although emanating from a concave surface, the image, as seen by the monocular ophthalmoscope, presents a flat appearance; at its centre is the optic papilla, contrasting markedly by its whitish colour with the surrounding parts, which are of a brilliant uniform red colour, traversed by fine dark-coloured lines, representing the retinal vessels. The red colour varies according to the individual; it may be a very pale or very dark red, or may contain a yellow or orange, or even a greyish tint. The fundus, as already stated, consists of the optic nerve, the retina, choroid, sclerotic, and vessels and nerves belonging to these structures.

The intra-ocular end of the nerve, termed *optic papilla*, or *optic disc*, is circular or nearly so, and, as contrasting with the surrounding surface, appears of a white colour; it is, however, of a soft cream colour or pinkish grey, and not unfrequently conveys the idea of relief; it forms the most prominent and important feature in the image; it may be either sharply demarcated from the surrounding fundus, or may be partially or completely surrounded by one or two circles indicating the sclerotic and choroidal openings—the former white, the latter dark coloured. When the choroid is abundantly pigmented close up to the optic nerve, there is no appearance of the white or sclerotic ring round the disc, but when it is not we look down upon the sclerotic opening, which appears as a whitish ring round the nerve. Occasionally we find at one side—generally the outside—of the disc a very dark or black semicircular line; this is simply an accumulation of pigment in the choroid at this situation, and is seen in perfectly healthy eyes. Starting from the centre of the disc we find the branches of the centralis retinæ artery and vein, the former are the smaller of the two sets, and light red in colour. As a rule the artery, after emerging from the porus opticus, divides into two main stems, one

above and the other below; these subdivide and branch out into numerous small stems, which take a direction towards the temporal side, coursing somewhat circularly round the yellow spot towards the periphery of the retina. The course of the veins is similar, both sets of vessels avoiding the yellow spot; the veins are larger in calibre, darker in colour, and a little tortuous; in addition to these larger branches several minute ones may be seen ramifying on the disc. The vessels do not usually subdivide until after leaving the disc; they do not always pass through the nerve in one and the same opening, and one vessel is often seen to cross the other—sometimes the artery beneath, sometimes the vein. In the drawing the artery is seen to cross the vein above, and to pass beneath the vein on the lower part of the disc. Occasionally the disc presents a slightly mottled appearance, attributable to a number of small oval, dark, or bluish spots; this appearance is due to the anatomical arrangement; the intraocular portion of the nerve being almost transparent, we can see completely through it as far as the *lamina cribrosa*, which reflects the light very strongly; occasionally some of the nerve tubules continue transparent for some distance on the cranial side of the perforated plate, and we are thus enabled to look down into them beyond the cribriform plate; hence they appear as dark spots, while the lamina cribrosa itself appears as a glistening white surface. It is not uncommon to find in the centre of the disc a depression; this may be of greater or less magnitude and simulate the cupped optic nerve seen in glaucoma. This *physiological excavation*, as it is termed, is due to the circumstance of the nerve fibres bending round suddenly at right angles into the retina, leaving a space at the centre between them; it is seen as a bright white spot, generally at the outside (real) of the papilla, or it may appear as an extensive cup-like depression of the nerve. In this normal excavation, however, the margin of the depression never corresponds with the margin of the nerve disc, which it usually does in glaucomatic excavation. Another remarkable physiological phenomenon consists in the visible pulsation of the veins of the disc, which is not a very uncommon appearance during health; it is confined to the veins, and does not occur outside the optic disc. This *venous pulsation* is attributed to the temporarily increased intraocular pressure caused by the influx of blood brought to the eye by the arteries at each systole of the heart; an increase in volume occurs in the coats of the globe and compresses the vitreous humour, which on its part reacts and presses on the veins, they being the most

yielding parts; a complete or partial momentary stoppage of the column of blood in the vein is thus produced, and as soon as the transient pressure is removed the vein expands and the arrested column passes rapidly on. Immediately after the pulsation at the wrist the vein may be seen to fill from its peripheral end, and then, after a moment, to empty. This venous and normal pulse must not be confounded with an *arterial pulsation*, which only occurs during disease, when the pressure of the vitreous is continuous and greater than the lateral pressure exerted in the artery itself. This pulse cannot be easily mistaken, as it occurs synchronously with the systole of the heart; it appears as a rhythmical movement of the red column of blood, and as the vessel appears empty during the diastole of the heart. Both these pulses may be produced by pressing on the outside of the globe with one of the disengaged fingers of the hand carrying the lens. Slight pressure will, as a rule, suffice to produce the venous pulse; if the pressure be kept up steadily and firmly the venous pulse ceases, the optic papilla pales, the veins empty, and the arteries pulsate, and dimness of vision ensues. When on slight pressure being made the arterial pulse becomes apparent, it shows that the intraocular pressure is already abnormally great. The physiological explanation of the arterial pulse was first given by von Gräfe, who likewise drew attention to its great practical importance and significance in the diagnosis of glaucoma.

In shape the optic papilla is, as a rule, circular. Sometimes, however, it is oval from above downwards, and very rarely horizontally oval. Whenever it is seen to vary from the circular shape, we should be on our guard and satisfy ourselves that it is actually anatomically oval, for by a false position of the lens its shape may be distorted. In case the papilla appears oval in the reversed image, we should examine it by the direct method, and *vice versa*, as a comparison of the results of both methods may lead to the recognition of a rare anomaly of refraction—astigmatism. Minute spots of pigment have, on rare occasions, been observed as congenital peculiarities on the optic papilla of normal eyes.

The *retina* cannot, as a rule, be distinctly seen during health; it is, if not perfectly transparent, at all events highly translucent, and we look through it on to the choroid. When the choroid is deeply coloured with abundant dark pigment, the retina may be indistinctly visible as a slightly greyish cobweb-like membrane; occasionally delicate, isolated lines, representing the nerve fibres, may be

detected radiating towards the periphery. The presence of the retina may, however, always be recognized by means of the branches of the arteria and venacentralis retina, which, after passing the disc, course towards the periphery in the nerve-fibre layer of the retina. These vessels are, as I have stated, distinguished by their size and colour. The arteries are small, and filled with bright red blood, while the veins are larger, somewhat more tortuous, and of a darker colour. The arteries appear sometimes as if transparent along the centre of the vessel, or, which is the same, as if the lateral walls were opaque; this is, however, solely owing to the reflection of light, in the direction of its incidence, from the most prominent part of the vessel (that towards the observer). The retinal vessels appear almost to stand out in relief, and are easily visible. When one of these comes into view, while the observer is looking for the optic disc, he should trace it backwards in the direction of its increasing thickness, or in the contrary direction to that in which its vessels are given off.

The *macula lutea*, or yellow spot of Sœmmering, is situated to the outside of the optic disc in the retina. Its position in the inverted image is indicated by the dark shading in Plate I. to the inside or left-hand side of the disc. This so-called yellow spot is only exceptionally to be distinctly recognized; its position may, however, be at all times easily seen. The patient should regard the image of the flame in the mirror, or the point of the erect index finger of the hand carrying the ophthalmoscope, the finger being close beside the mirror. The position of the yellow spot is characterized ophthalmoscopically by the absence of retinal vessels of any size, and by the dark colouration which is due to a more abundant pigmentation of the choroid at this than at other places. The fovea centralis is said to appear as a small, bright spot about the middle of this dark-coloured portion. Those wishing to study this part more particularly should employ a plane mirror, with a concave lens behind it, and get the observed to regard steadily the flame of the image in the mirror; there will then be formed an image of the flame, or part of it, on the fovea centralis.

The *choroid* membrane lies beneath the retina, and forms one of the most important features in the ophthalmoscopic image, as to it is due the peculiar red colour of the fundus; in the examination we are, in fact, regarding not the retina but the choroid. The colour of the fundus depends on the illumination and on the pigmentation of the choroid and its epithelial layer; it is a bright blood-red, with an

admixture of yellowish brown due to the blood in the tunica vasculosa and the chorio capillaris; and to the pigment in the stroma and in the epithelial layer; in fair and blonde persons the amount of pigment in the cells is small, and the fundus appears of a light yellow red, whereas in dark-complexioned individuals, with brown or black irides, the pigment is abundant, and the fundus appears of a brown red. Dark, brown, or black spots, with irregular outlines, are of not uncommon occurrence in the fundus of healthy eyes; they are simply accumulations of pigment corpuscles, and are most frequently seen at the outside of the optic nerve entrance. As a rule, the fundus presents a uniform colour, and a faintly granular or stippled appearance, in front of which the retinal vessels stand out in relief; or the retina itself may be recognizable as a delicate bluish grey film in front of the dark choroid. Occasionally the internal (epithelial) layer of pigment is so scanty and diaphanous that we are able to see the large choroidal vessels through it; these are always of a lighter colour, and are likewise broader than the retinal vessels; they are likened to flattened ribands, of a yellowish or orange tinge; they are not sharply defined, take a winding course, anastomose, and divide frequently, and may be distinctly seen lying beneath the retina; by fixing a large dark retinal vein, we can satisfy ourselves of the existence of a space between it and the choroidal vessel, and by means of the binocular ophthalmoscope this relation becomes very manifest. Occasionally the pigment is so abundant and dark in the meshes of the stroma between the vessels, and so scanty in the epithelial layer, that the choroid appears as if mapped out into irregular, angular, dark, island-like spaces, bounded by yellowish lines, the latter representing the large choroidal vessels. In healthy eyes the fundus should be perfectly clear and brilliant, without any haziness or indistinctness of its parts. At the entrance of the optic nerve into the globe the choroid appears sometimes as a dark circle or half circle around the nerve.

The *sclerotic*, although entering into the formation of the fundus, is but rarely visible during health, being concealed by the choroid; it contributes, probably, in a slight degree, to the colouration of the ophthalmoscopic image. Occasionally a small circle of this membrane is exposed around the optic disc at the nerve entrance, and appears of a brilliant white, or tendinous aspect. As a result of pathological alterations, this membrane frequently becomes visible.

ART. III.—*On Maxillary Dislocation and its Reductions.* By DILLON KELLY, M.R.C.S.I.; Medical Officer of the Milltown Dispensary, Co. Westmeath.

FROM the era of Hippocrates to the days of Fabricius ab Aqua pendente, it was a generally received opinion that death on the tenth day would be the consequence of an unreduced dislocation of the lower maxilla—an opinion, by the way, which goes a great length in proving that not only the enunciator of that aphorism, and all echoing it, had never seen an unreduced case of such a dislocation. Here then we have an admission of the reverence and slavish veneration for the enunciation of a great man, keeping, as it were, the thought and induction of the surgeon in complete abeyance for a period of fully two thousand five hundred years, a lesson well calculated to call into active operation the faculties of every reflecting member of the profession, a lesson never to be forgotten by the routinist. Sir Astley Cooper was, I believe, the first English surgeon who showed the fallacy of that opinion. And in the first edition of Samuel Cooper's "first lines," published in 1801, we find the following statement:—

"It is evident from the circumstances in which a person with a dislocated jaw is placed, that very severe complaints and even death itself may follow the accident if no relief should be given." Which, to a certain extent, proves that he also was a believer in the Hippocratic aphorism. In the later editions of his dictionary, however, he partially advocates a different opinion. Yet, at the same time, in deference, apparently, to some unacknowledged authority, he again falls into the error of asserting that during the first five days the patient cannot speak, and, according to Boyer, cannot even swallow. The greater attention paid to those accidents by modern surgeons has completely demonstrated the fallacy of those most absurd opinions; for were they correct, we could never see a living example of an unreduced maxillary dislocation.

Since then, however, cases of unreduced maxillary dislocation have turned up, proving not only the fallacy of those opinions, but also that errors in surgical diagnosis and practice are not, like the Crusades, curiosities of the middle ages.

We need not, however, wonder at the assertion of Hippocrates, when we recollect that Sir Astley Cooper, in his surgical essays, in remarks on dislocations, mentions, on the authority of Mr. Cline,

that Mr. Samuel Sharpe, who was surgeon to Guy's Hospital, and had besides a large share of practice in the city, did not believe that such an accident as a dislocation of the thigh bone had ever happened.

The profession at the present day hold various opinions as to the causes preventing the reduction of a maxillary dislocation, Sir A. Cooper, Petit, &c., asserting that, when once the condyles of the inferior maxilla are thrown in front of the transverse roots of the zygomas muscular contraction, is the sole agent concerned in preventing their return to their normal positions.

Whilst Boyer and others believe the great obstacles to reduction to be the transverse roots of the zygomas themselves, which descend behind the condyles, one of these processes are hitched against their anterior inferior aspects, and kept so by the continued action of the elevating muscles.

M. Malgaigne, however, dissents, in toto, from the latter opinion, asserting, from experiments on the dead subject, that in depression of the lower-jaw the condyles invariably glide over the transverse roots of the zygomas, and, therefore, that what all surgeons of the present day regarded as a dislocation, was but the normal position of these processes, and that one can at any moment produce in their own persons all the symptoms of dislocation, pain, and the necessity for reduction, alone excepted.

That M. Malgaigne's theory is partly true is easily demonstrable by any surgeon, who, by simply opening his mouth and placing his finger over one of the condyles, will at once feel that process descending along the transverse root of the zygomas. In so far, therefore, he is correct; but to produce the simulation of a perfect luxation, it is also necessary that the maxilla should be protruded forward at the same time.

Therefore, although the normal position of the condyles during depression of the lower maxilla, is, to a certain extent, anterior to the transverse roots of the zygomas, this does not go to the whole length of constituting that abnormal position of the articulations which, occurring during the processes of sudden and violent depresion and protrusion of the maxilla, is sufficient to produce its complete dislocation. M. Nélaton, seeing the inconsequence of the reasoning in this theory as determined by induction, and throwing increased muscular action overboard altogether, teaches that the chief obstacle to reduction of the maxilla must be sought for, not in the articulation itself, but parts in its vicinity. Starting from this

point, then, he asserts, from experiments also on the dead subject, that the cause preventing reduction, is not situate in the articulation, but dependent on the altered relations of the coronoid processes and the malar bones.

According to his theory, the apex of that process comes in contact with the malar bone, becomes hitched against its posterior inferior margin, and firmly locked in that position, not by muscular contraction, but by the abnormal length of the coronoid processes in certain subjects.

Now this is but a begging of the question, as it is evident from the above premises, that no such thing as a dislocation of the maxilla could occur, unless nature should be too bountiful to the unfortunate subject of such an accident in the article of jaw.

But there is nothing new under the sun, as M. Beaugrand clearly shows, who proves by extracts from Fabricius ab Aqua pendente, Bichât, Delpech, and Professor Smith, that they too held similar opinions concerning the position of the coronoid processes in this dislocation. But that both Malgaigne and Nélaton were in error in their deductions from experiments on the dead subject, must be evident, when we consider that in such cases there can be no such thing as muscular antagonism, a power playing the most important part in the theory of every dislocation, but more especially in that of the lower jaw, where the action of the elevators so preponderates over that of depressors.

If we study the physiology of the muscles of the lower maxillary articulations, we shall find that the external pterygoids, in consequence of the direction of their fibres being nearly at right angles with that of the temporals, masseters, and internal pterygoids, must, as a consequence, act at nearly right angles with the action of those latter muscles, they also being the principal muscles in carrying the lower jaw forward; that being assisted, to a certain extent, in that office by the superficial portions of the masseters and internal pterygoids, those being the proper grinding muscles, their actions must, as a thing of course, be associated with the motions of those muscles, and act simultaneously with them. Now, Mr. J. P. Vincent has shown very clearly that as almost all muscular actions are performed in reference to a centre, so when by any accident that centre is deranged, if an abnormal or a new centre can be readily formed, a new combination of muscular action is at once developed, as conformable as may be with the centre produced. When dislocation of the jaw takes place, a new centre is formed; and not only, therefore,

does the direction of the muscles involved in that dislocation become altered, but their lengths from their new positions become altered also. Thus the external pterygoids become considerably shortened, in consequence of the new positions of the condyles anterior to the transverse roots of the zygomas; whereas the internal must, to a certain extent, become elongated by the throwing backwards of the angles of the maxilla.

Now, admitting that the muscles adapt themselves to their new positions and centres, and that the external pterygoids must be considerably shorter in maxillary dislocations than in their normal states, it follows that a degree of spasm of these muscles must be present to account for their abnormal decurtation.

Assuming, therefore, that the internal pterygoids become elongated from the elevation and recession of the angles of the inferior maxilla, they, from an opposite cause, must be the subjects of spasmodic action also.

Here, then, we have two causes, both conducing to the same end, yet either of them, quite sufficient by itself, to produce all the phenomena of muscular spasm.

If, then, we admit that the centre of motion of any articulation being accidentally changed, the muscles of that articulation will, in consequence of the irritation assumed by all muscles, when they are forcibly thrown out of their line of action, take on or exert abnormal action of extraordinary power. We have, then, another cause sufficiently powerful not only to account for all the phenomena of maxillary dislocations, but also capable of opposing an almost insurmountable obstacle to their reduction. A moment's reflection on the appearances presented by such a dislocation must at once convince us that such an alteration has taken place. Continuing our examination, it will become evident that the external pterygoids, acting under the influence of the pathological law already enunciated, draw the condyles forward with almost irresistible force towards the pterygoid processes of the sphenoid, and hitch them against the transverse roots of the zygomas, which thus become their *points d'appui*, and produce a sort of dove-tailing between the depressions on their necks and the ridges constituting those roots. That the remaining elevators of the articulation are not in a state of quiescence, may be inferred when we take into consideration the direction those muscles assume in the new arrangement of the centre of motion, the internal pterygoids drawing the maxilla upwards and forwards, whilst the masseters and temporals draw it upwards and backwards.

Here, then, we have, in like manner, another combination of forces, almost diametrically opposed to each other, yet all tending to the same end, and requiring, I think, no great stretch of the imagination to presume that the increase of muscular action developed in consequence must be the chief obstacle to the reduction of such a dislocation.

To M. Nelaton, however, is the merit due of being the first to act on the inference derived from what he supposed the chief obstacle to reduction, and of practically applying means based on that inference, by directing the patient to open his mouth as wide as possible when about to reduce a maxillary dislocation; at the same time, that he completely overlooked the equally palpable inference to be drawn from his first step in the process of reduction, namely, the relaxation of all the muscles engaged in the dislocation by the action of opening the mouth.

Mr. Vincent, in his work on associated muscular action already referred to, observes:—

"That the overpowering strength which a muscle is brought to exert when its usual direction of action, about a centre, is forcibly changed, is another law of conditions of the utmost consequence to the surgeon.

"The dislocation of the patella on its edge is an example; the bone sets the extensors of the leg into action of the most violent kind, these muscles act most powerfully when the limb is to be straightened, and, in the condition in question, they act with a power that defies all the force that human aid can call to its service.

"Their force is also partly the effect of that irritation which all muscles get when they are thrown out of their ordinary line of action, particularly when they are disturbed in moving round their ordinary centre of motion. We have only to flex the leg a little, and all this powerful opposition to restoring the patella ceases on the slightest rotatory motion.

"The disturbed arrangement here, was the elevation of the centre of action of the extensors above the ordinary position, and as these muscles, in the straight position of the whole limb, are called upon to support a great proportion of the weight of the body, so when in that position, they are naturally impelled to exert vast force.

"But, in obedience to the associated action of combined muscles, when the leg is bent, and another order of motions in this complicated joint, brought into play—then, these extensor muscles immediately relax, as they would otherwise, by their action, prevent

the rotatory motion of the leg upon its axes; thus, the moment the leg was bent, the extensors returned into a comparative state of repose and left the patella quietly to resume its appointed position."

Acting on that principle, in May, 1839, I reduced, with the greatest ease, a maxillary dislocation produced by the retching of gestation in a stout young woman, the wife of a respectable trader in this town, to whom the same accident occurred repeatedly afterwards.

In March, 1847, Mary Thompson, aged fifty-five, a beggar-woman, of stout make, dislocated her lower jaw by falling against the end of her bed at night.

Her neighbours, in the morning, seeing she could not shut her mouth, unanimously were of opinion that she was "fairy-struck." Firmly believing in the truth of this superstition, she sought no surgical aid, and remained in a state of suffering for four days; yet at the same time making every effort to procure funds to bring her to a fairy practitioner at some distance.

Whilst thus engaged, she accidentally called on Mrs. F. for some relief, who at once recognized the nature of the accident, and sent her to me.

In this case also, notwithstanding the length of time that intervened, and the muscularity of the patient, I reduced the dislocation without the slightest difficulty.

Lastly, in August, 1850, J. M'Donnell, aged about thirty, tall and rather muscular, having gone to the funeral of a friend, and drank too freely, the violent retching that succeeded dislocated his lower jaw. Being up to that period a teetotaller, and not knowing what had occurred, or the nature of the accident, he and his family imagined he had suffered an infliction for breaking his pledge, from which he was destined never to recover; and I found him, in consequence, although still labouring under the effect of intoxication, in a state of the greatest distraction.

In this case too I was equally and instantaneously successful.

In accordance with the theory, therefore, of associated muscular action it is necessary, for the reduction of this dislocation, that the pterygoids, masseters, and temporals should be relaxed, as being the chief or opposing forces to its reduction. And to relax them, it is necessary that the digastricus, mylo-hyoid, stylo-hyoid, and genio-hyoid, or group forming the depressors of the lower jaw, should be called into action by opening the mouth.

To reduce it, therefore, place the balls of the thumbs, covered

with a handkerchief, on the crowns of the posterior molars, grasping the angles of the jaw externally with the fingers; then desire the patient to open the mouth, when the slightest pressure downwards, during the act of opening it, will be sufficient to disengage the necks of the condyles from the transverse roots of the zygomas, and will permit the temporals and masseters to at once reducethe dislocation by the reinduction of their normal action.

In conclusion, so easily is such a dislocation reduced in some subjects by that mode of treatment, that I instructed Mrs. F. in the manipulation, who was quite familiar with the accident, and who also became so familiar with the principle, that she was accustomed to reduce her own dislocations by pressure with her indices placed on the crowns of the posterior molars.

Art. IV.—*Remarks on Cholera.* By W. Jackson Cummins, M.D., L.K. and Q.C.P.I., Physician to the Cork Dispensary and Blackrock Cholera District, &c., &c.

Cattle plague and cholera threatened Ireland for a long time before they actually made their appearance; the one, a disease of admittedly contagious nature, the other with a doubtful character for contagion, but known to extend its ravages along the great paths of human intercourse.

We had time to prepare for both, and by adopting means applicable to each, the disasters which threatened have been in a great measure prevented.

A true "stamping out" process was adopted for the rinderpest; assuming that the disease only spreads by contagion, each case that occurred in the island was rigidly isolated, and all foci in which reproduction of its poison was possible, were utterly destroyed; success followed upon these measures, and, whether truly or not, we assume with more reason than ever that rinderpest is simply contagious, and that we have stamped it out.

But even if cholera were not unmistakably an epidemic disease, which, although portable by human beings, and possibly contagious, can wend its way from country to country without assistance from man, the necessities of civilization and commerce would render it impossible in these days of locomotion to apply the stamping out process for its prevention; and therefore, when cholera threatened, we adopted what might be called a starving out system, by depriving

its poison of the local pabula necessary to the exercise of its power. As the colonist, aware of the impossibility of extinguishing the prairie fire, cuts away the withered herbage on which it feeds, and saves his homestead, so did we, acknowledging it hopeless to stay the onward march of the epidemic poison, endeavour to remove from our cities and houses, and from our own persons, the various conditions favourable to its onslaught. We believe that sanitary science which prompted this mode of dealing with epidemics mitigates much of their destructiveness. Diseases are not *exterminated* thereby; epidemics come and go as before—cholera, fever, small-pox, diphtheria, scarlatina, and many others in wave after wave rise and swell and disappear, but each succeeding wave is less destructive to life, and we may hope that in time, when sanitary science has become more perfect, the remote causes of diseases may pass over us without our being aware of their presence.

We can mark a gradual diminution of the mortality from cholera in each epidemic which has occurred since 1849, when the deaths in England and Wales amounted to 62 in every 10,000 of the population. In 1854 they decreased to 43 per 10,000; while in 1866 they were only 18 per 10,000.[a]

But although the average mortality of the population from cholera has been thus gradually diminishing since 1849, the disease is still as fatal as ever among those attacked. In England, in 1832, 47 per cent. of the cases died; in 1848 and 1849, 45 per cent; in 1853 and 1854, 46 per cent. (Reynolds' *System of Medicine*); while in 1866 the mortality fully averages the highest of these; hence we would argue that the decrease in the number of deaths from cholera is not due to diminished intensity of the disease, but to the improved, and gradually improving, condition of our towns, and to the better habits of the people. We believe that cleanliness, good drainage, wholesome food, pure water, and other means whereby a healthy tone of mind and body are preserved, have already proved efficient

[a] July 5th.—The author is indebted to the valuable reports on cholera by Drs. Hayden and Cruise, which appeared in the May number of this Journal, for the above figures. They are quoted by those gentlemen from the returns of the Registrar-General for England.

It may appear strange that no allusion has been made in the text to such an exhaustive record of the late cholera epidemic as that by Drs. Hayden and Cruise, nor to the lengthened discussion at the Medical Society of the College of Physicians of Dublin, published in the May number of the Quarterly. In explanation, the author begs to say that his paper was read at the Cork Medical Society last April, and sent in only a little too late for insertion in the May number of this Journal.

prophylactics against cholera, and in time it may be established that the poison of this and other diseases can no more destroy life, without the conditions which these means counteract, than fire can burn without fuel.

But assuming the poison of cholera to be a ferment, theory would lead us to suppose that it may be stamped out of our systems, and possibly also out of enclosed places, in which it has become localized by means which prevent fermentation from taking place.

Professor Polli led the way by his interesting experiments into a new department of prophylactics. He showed that catalytic action may be arrested within the body by the internal use of sulphurous acid in the form of bisulphites. Dr. De Ricci applied this new doctrine to the treatment of various forms of catalysis, and I have given it a successful trial in scarlatina and diphtheria (see *Dublin Quarterly Journal*, Vol. XXXIX).

As soon as cholera became epidemic in Cork, I determined to test the same principle in a different way; and anxious that others should also try it before the cessation of the epidemic, I published a few remarks on the subject in *The Dublin Medical Press* of Nov. 28th, 1866. Since that time sulphurous acid has been set free by burning sulphur in almost every house in which I had cholera under treatment; and the results have been sufficiently encouraging to make me consider them worth publishing.

The district which I attend is a peninsula on the eastern side of of Cork, surrounded on all sides, except one, by the river. The soil is limestone, and the water supply precarious. The wells in most of the villages are so situated that the surface water and impurities of all kinds, in solution, drain into them, especially during heavy rains.

All epidemics of cholera have been severe in this district, and that of 1866 though far less severe and general than former ones, has had I should think in it at least one fourth of all the cases which occurred in Cork, although its population is comparatively small, and its poor far better off than in most other places.

In this district choleroid affections began to prevail towards the end of September, became exceedingly severe and general during October, one case only (an old woman) proving fatal.

On the 23rd, the first cases of true Asiatic cholera occurred—two in number—within one hundred yards distance of each other on the Blackrock-road; both children who had had no communication with any cases of cholera in the city; one of these died within

twenty-four hours, the other recovered. The corpse of the fatal case was visited shortly after death by some schoolfellows, and of these one was attacked on the 25th and another on the 29th. Both recovered after severe illnesses.

A brother of one of these was attacked on November 22nd, and died in sixteen hours. A third case, which recovered also, occurred eleven days after in the same house.

In the neighbourhood of these cases cholera appeared in three other houses, and about two miles nearer the city two cases occurred in one house. Between these latter points, and to the south of both, are situated two villages, Skeyhard and the Brick Yard, within an area of about half a mile, and running parallel to each other on different elevations, from east to west. They are separated by a gravelly hill, and connected by a lane at the western side, and by paths over the hill. The Brick Yard, which is the lower of the two, is on the edge of a branch of the river, which is a mud bank at low water. It consists of eleven houses (two of which were unoccupied) containing fifty inhabitants. The river, village, and a considerable area of low land and swampy islands, lie in a basin formed by hills surrounding it on all sides except that toward the tideway on the east.

A large well, sunk under low water mark is, I believe, the sole water supply of this village, and partly also of Skeyhard, but another and purer well which is within a mile or so of the latter, is to some extent availed of.

The village of Skeyhard consists of thirteen houses, containing eighty-one inhabitants, ranged along the side of a hill in groups of two and three; all, except one, on the south side of the road. Hills slope on all sides but one, towards this village, the one exception (the eastern) being shut in by trees.

On the 10th November a boy named Foley was attacked by diarrhea in Cork, where he had been working. He returned home to No. 6, Brick Yard, rapidly fell into collapse, and continued in the algide stage of cholera for some days, after which reaction set in, followed by fever and severe uremic head symptoms. This boy continned in extreme danger for two or three weeks, but ultimately recovered.

On the 12th a child was attacked in No. 2 Brick Yard; but the symptoms yielded rapidly; not so, however, in the next case, a girl residing in No. 1, Skeyhard, who was said to have visited Foley; she had the disease most severely, but recovered.

From this point cholera spread down the Skeyhard Hill, passing over five houses on the hill side, and attacking six out of the seven at its lower end. It is needless to enter further into the course of the epidemic, as the figures on the accompanying plates supply all particulars.

Part of Blackrock-road with Cat-lane and Pump-lane, all situated within an area of about quarter of a mile, the infected houses being from two to five minutes' walk of each other—many other houses intervening.

Numbered from west to east, "R," recovered; "XX," died; "X," died of consecutive fever.

1	2	3	4	5	6	7
Sulphur burned, Dec. 12th, XX.	Oct. 23rd, R.	Sulphur burned, Oct. 23rd, XX.	Sulphur burned after a day or so, Oct. 29th, R; Nov. 3rd, XX; Nov. 13th, R.	Dec. 15th, R.	Oct. 25th, R.	Nov. 29th, X.

Cork end of Ballinlough road, about two miles from infected (east) part of Blackrock road. H sent to hospital:—

November 12th, H November 13th, R	Sulphur burned.

Skeyhard, numbered from west to east, 13 houses. Population, 18. Sulphur burned in all the houses.

1	2	3	4	5	6	7	8	9	10	11	12	13
Nov. 16th, R.	0	0	0	0	0	Nov. 24th, XX; Nov. 28th, R; Dec. 8th, R.	Nov. 27th, XX; Nov. 27th, XX.	Nov. 29th, R.	Nov. 26th, XX; Nov. 29th, R.	O.	Nov. 30th, R; Nov. 30th, R; Dec. 3rd, X.	Nov. 30th, XX; Dec. 1st, R; Dec. 4th, X; Dec. 5th, R.

Brick Yard, numbered from west to east, 11 houses—9 inhabited. Population, 59. Sulphur burned in all.

1	2	3	4	5	6	7	8	9	10	11
Nov. 29th, X.	Nov. 12th, R.	Dec. 18th, R; Dec. 18th, XX; Dec. 27th, R.	Empty	Empty	Nov. 10th, R.	0	Dec. 8th, XX.	0	0	Dec. 2nd, R; Dec. 27th, R.

Here we have a history of thirty-six cases of true Asiatic cholera occurring in twenty-one houses, in eighteen of which sulphur was burned in order to set free sulphurous acid as a prophylactic and a therapeutic; of course the quantity used at a time was small, just sufficient to create a perceptible odour and slightly irritate the mucous membranes of persons approaching the spot, where the little blue flame was kept constantly burning, by sprinkling a few grains of sulphur from time to time on a pan of live coals

The poison of cholera was highly concentrated in Skeyhard and the Brick Yard, as evidenced by the rapidity with which case followed case, and the fact that in three houses more than one person was struck down simultaneously. On the Blackrock and Ballinlough roads the cases were more scattered, and occurred at much longer intervals, so that we may presume that although there were eight different foci of infection there was less danger of reproduction. In the one house where three cases occurred, a large heap of manure close to the back door, in a confined yard, explained the localization of a more concentrated poison. Sulphur was not burnt until the death of the second case in this house, when it was used as a disinfectant, but failed to prevent a third case, fifteen days after the first; although it may have modified the effect of the poison, as the last case contrasted most favourably with the two previous ones in the mildness of its symptoms and the rapidity of its recovery. Although sulphur was burnt from the first in the house on Ballinlough road, a second case occurred on the following day, having probably had the poison in her system before the prophylactic had been used; this case too was a modified one, the symptoms presenting a marked contrast to the severity of the first.

In the six other houses on these roads there was no recurrence of the disease; but as sulphur was burned in three and not used in the others, we can draw no conclusion from their escape.

Viewing the villages of Skeyhard and the Brick Yard together, we find that thirteen houses were attacked, in seven of which there was no recurrence after the first case or simultaneous cases. Of the remaining six there was recurrence—on the second day in one, on the third day in two, on the fourth day in one, the ninth day in one, and on the twenty-fifth day in one. A third case occurred on the fourth day in one, and on the twelfth day in one. A fourth case on the fifth day in one, and a fifth case on the sixth day in one; but of these ten recurrent cases *not one died of the primary disease, and only two of consecutive fever.* One of these latter had been a very mild case, and her death was as much due to the debility of old age and several nights of nurse-tending, as to the disease. She was a very old woman who had come from Cork to nurse her grandchildren.

The low rate of mortality among the recurrent cases cannot have been due to any special treatment, as all were treated on the same principles; nor to a diminishing intensity of the type of the disease, as most of them occurred at the very height of the epidemic, and within a few days of the first case in the respective houses. We may therefore fairly attribute it, in some measure at least, to the known effect of sulphurous acid in preventing the process of zymosis. Further, when we consider how many escaped attack altogether in these over-crowded houses, although exposed night and day to the influence of a most concentrated poison, we cannot help crediting our anti-catalytic, as having been the probable means of saving many lives, and therefore think the experiment worth repeating on a large scale.

Sulphur was also used as a disinfectant in the houses of all who died, a considerable quantity being burned, enough to penetrate every crevice and corner, and to destroy any life subjected to its influence. The Inspector of Nuisances, Mr. Carr, carried out this plan most efficiently, stating that experience led him to consider it one of the most powerful disinfectants at his command.

Almost all these cases, treated in their own homes, without removal from the infected locality, were in other respects also, attended under peculiarly unfavourable circumstances, being, for the most part, poor and ill-nourished, with only such appliances as the hand of the charitable could afford them, and, in some instances, too ignorant to remember my directions, or carry out fully my plan of treatment.

Fourteen deaths occurred out of thirty-six cases treated, a proportionate mortality much below average, and attributable, I believe, in some measure, to the therapeutic effect of the sulphurous acid.

I have seen benefit arise in very bad cases from a little excess in

the use of this agent, enough to cause slight coughing and sneezing, and in no instance, even when accidentally set free in too large quantity, have I seen it do harm.

We cannot pass over the evidence in favour of contagion afforded by the introduction of cholera into the Brick Yard, and from it to Skeyhard, by Foley, who was in the first stage of the disease when he returned from Cork. There are too many similar instances on record now, to admit of doubt regarding the portability of cholera; and yet this disease stands in marked contrast to small-pox, typhus, and other contagious diseases, in its communicability to the immediate attendants upon the sick.

When cholera first appeared in Cork, Professor O'Connor published a most useful letter in the daily papers, drawing attention to the almost complete immunity from cholera enjoyed by the hospital physicians, and others whose duties brought them into close contact with cases of the disease, and contrasting this with the terrible mortality among the same classes during epidemics of typhus.

This letter served its purpose, as it allayed panic. But if it be sought to establish, upon premises of this kind, the non-communicability of cholera, in the face of such evidence to the contrary as that contained in the paper read before the Cork Medical Society by Dr. Hardie, we consider such conclusion overdrawn.

The type of cholera observed during this epidemic was most severe, those attacked having been, in most instances, struck down without preliminary diarrhea.

The most formidable cases were those which early became cold and pulseless, with insatiable thirst for cold water, extreme restlessness, slight vomiting, loss of voice, and little or no diarrhea.

Thirst preceded all other bad symptoms in many cases, and its intensity was not always in a ratio with the amount of evacuation from the blood, seeming to be caused, in some instances at least, by irritation of the gastric mucous membrane, expressed by that internal sense of burning so often complained of. Cramps of the voluntary muscles were quite exceptional, and were absent in many cases where the venous condition of the blood was unmistakable.

The colour of the surface was generally quite livid, with an almost black conjunctiva, but a deadly, earthy pallor was more observable in the countenances of some few: secretion of all kinds was in abeyance, except when a cold dampness overspread the skin; the eyes were deeply sunk in the orbits of all; pulmonary oppression was a constant symptom.

Some of the cases which had been utterly pulseless, fell into a quiet sleep, and gradually recovered. One boy, who seemed actually in articulo mortis, rallied after I had, at the request of the inspector, signed a blank form for certificate of his death, in order to procure him a coffin without delay; and astonished me by recovering completely.

Two cases which had been quite pulseless many hours, had a return of pulse at the wrist, and an increase of temperature shortly before death. In some few instances I noticed that absence of pulse was intermittent.

I witnessed the onset of the disease in one instance while visiting a patient in secondary fever. A woman brought a child into the house in her arms, apparently quite well. It suddenly became very pale, and vomited three lumbrici, and a large quantity of serous fluid; from that moment it was cold and pulseless as a corpse, till about two hours before death (which took place in fourteen or fifteen hours), when the temperature rose and the pulse returned.

A large proportion of the deaths from cholera occurred within twenty-four hours of the first symptom. In the vast majority of cases vomiting was most distressing; but diarrhea was almost as exceptional as cramps.

Reaction generally occurred very gradually, and in some instances ran on into fever of a typhoid character, with a red, dry, shining tongue; others presented more the symptoms of typhus, with red, ferretty eye, and sleeplessness. Two cases were marked by all the formidable symptoms of uremic poisoning, and were treated principally with infusion of digitalis; one of them died, although the secretion of urine had been re-established some days; the other recovered after a protracted illness.

It is needless to enter into details of the symptoms which presented themselves in these cases. So much has been written on cholera, and so generally well observed have been its remarkable phenomena, that although varieties have been noticed in the characteristics of different epidemics, every one is able to recognize the disease, and agree regarding its symptomatology.

Very opposite views, however, are held as to the cause of those symptoms and the general pathology of the disease. These conflicting views embarrass the practitioner at the bedside, and cannot fail to render the practice of any thoughtful man uncertain, unless he is a partisan, a routinist, or has struck out a path for himself from the writings of others, or his own experience of the disease.

The controversy on both sides has been carried on with great ability, and it is impossible not to recognize grand truths, derived from close observation at the bed-side, in the writings of each party; while there seem to be some things which each has regarded from his own special point of view, and which possibly admit of explanations by more impartial observers, so as to answer objections urged against certain points in both theories.

A cursory view of an ordinary case of cholera would lead us to attribute collapse to a draining away of the fluids of the system, and consequent stagnation of the great functions of life; but extraordinary cases are on record where collapse has existed without any, or with little drain from the blood, either passed from the stomach or intestines, or retained within the abdomen.

Besides such cases, every observer must have seen instances which afford convincing proof that the intensity of collapse is not always in proportion to amount of evacuation, while all have seen collapse pass away gradually before evacuation has ceased to be profuse. Collapse cannot, therefore, be considered entirely an effect of evacuation, and yet it is certain that profuse evacuation, when present, must produce more or less inspissation of the blood, and that the latter condition, both mechanically and vitally, retards capillary circulation, arrests secretion, and otherwise takes a prominent place as a cause of the symptoms on which collapse depends.

Dr. G. Johnson's view of cholera is quite opposed to this, as he attributes all the symptoms of collapse to spasm of the small arteries of the lungs, and consequent arrest of circulation, calorification, aëration, and secretion. These views are reasoned out with such ability and knowledge of the disease, that, were it not for the assumption that the spasm is caused by direct irritation of the minute blood-vessels of the lungs by the cholera poison circulating in the blood, they would be well nigh conclusive; but experience and experiment alike oppose a theory which denies that cholera may be prevented in the diarrhea stage by means which arrest the discharge, and retain a poison, assumed to be so directly irritant, locked up in the blood.

But if we throw overboard this assumption as to the cause of spasm, and find some other explanation of it, all Dr. Johnson's valuable reasoning as to the cause of collapse through imperfect oxidation, &c., &c., takes its place in our study of this condition.

If the poison of cholera, as of other zymotic diseases, is a ferment which reproduces itself upon some material existing in the blood, it would seem to differ in its *modus operandi* from such poisons as

vaccine or variolous virus, which reproduce themselves upon a normal constituent of the blood, as the pabulum necessary to the catalytic action of cholera poison seems to be an abnormal product of imperfect nutrition, existing ready formed in the bodies of the poor, the ill-nourished, the anemic, and the asthenic.

In all countries, cholera is found to be a disease of those who consume bad food and bad water, or who are much fatigued, or exposed, or panic-stricken.

In India, where the population is divided into castes, it has been observed "that the Brahmin and Banian merchants suffered less than the Ryot, or farmer, while the poor outcast Pariah suffered most of all." "The European suffers less than the Mahommedan, and the Mahommedan, who is better fed and clothed, less than the Hindoo, except during their rigid fasts, when the Mahommedans suffer in a much larger ratio." (Aitken.)

These facts are borne out by the epidemic, of which I have just given an account, as it is remarkable that of twenty-two occupied houses in Skeyhard and the Brick Yard, only nine escaped a visitation of cholera, and that of these latter the inhabitants of at least seven were better off than ordinary, having land, horses, and cars, or some other means of living on better food than their neighbours.[a]

All those who had cholera were the very poor labouring class generally with large families, depending on the day's work of one individual, at a season of the year when employment was precarious. The houses of the small farmers and car-drivers are on the road-side, like the others, and were surrounded on both sides with infected houses, yet in no single instance did they suffer, affording evidence that a diet, even a little above that of the labourer, is not without its effect upon nutrition, and through it upon predisposition to cholera.

This would point to an efficient system of out-door relief as the most certain, as well as the most humane prophylactic for the poor, when cholera is at their very door.

In London, during the epidemic of 1854, Dr. Snow and Mr. Simon brought forward evidence, that among persons residing in the same locality, and under similar conditions in all respects, except water supply, the mortality was three and a-half times greater among those supplied with the impure water of the Southwark and Vauxhall

[a] It is only right to mention that two of the families attacked on the *Blackrock-road* were better off than their neighbours. Both cases, however, seemed directly due to contagion, and in one also to a most foul manure-heap close to the back door.

Company than among those who drank water from the Lambeth Company (*Reynolds' System of Medicine*); and in the late epidemic, it was found that while the deaths in London per 10,000, at the north side of the Thames, were under four; at the south side under seven; and at the west side under eight; all these being supplied with tolerably wholesome water; the deaths were over seventy per 10,000 at the east side, where one covered and two open reservoirs existed "in dangerous proximity" to the Lea, at a point where that tidal river is full of foul sewage.[a]

This is only what we should expect, when we remember how largely water is made use of in nutrition, forming as it does from "700 to 790 parts in 1000 of blood."—(Kirkes.)

Increased waste of body, caused by cold, fatigue, anxiety, grief, or alarm, by increasing the retrograde metamorphosis of tissue and otherwise influencing nutrition, act as predisponents of cholera. "Troops on march invariably suffered more than troops in quarters." "Dr. Lorimer's reports show that men were more frequently attacked on long than on short marches."—(Aitken.) In No. lxxvi. of *British and Foreign Med.-Chir. Review* we find the history of an epidemic, where, "as long as the officers remained in their well-wooded compounds and comfortable bungalows, they escaped entirely, but three days after going into camp in October, five officers were attacked and four died. Many similar instances might be brought forward, from histories of cholera epidemics, while the effect of panic as a predisponent is so generally admitted that it is unnecessary to cite examples.

But one remarkable instance of the combined effect of cold, anxiety, and alarm, which came under my own notice, is worth recording.

A poor woman, who was in an oyster-boat when it capsized, narrowly escaped drowning by getting on a mud-bank in the middle of the river *on a dark night*, where she remained up to her arm-pits in water till she was rescued. She was half dead with cold and terror when brought ashore, but recovered gradually, and seemed almost out of danger, when, on the third day, she began to vomit, and fell into collapse of cholera. Her case was a most severe one; but she struggled through the primary disease, only to die of consecutive fever ten days after.

[a] Calculated from figures supplied by a Review in Dublin Med. Press, Vol. ii., No. 51, from the Registrar-General's return.

No other case occurred in the crowded lane where this poor woman resided; but cholera was prevailing at the time about two miles off, and had been a few hundred yards from her house some weeks before. But to return. So generally observed have been the relation between cholera and the various circumstances which increase waste of nervous and muscular tissue, or deprive the system of the power of assimilating, or the means of acquiring healthy nutriment, that although these causes, together or separately, are unequal to causing an attack of cholera, they cannot be overlooked as causes of the disease, or items in the study of its pathology. They form the pabulum on which the poison of cholera reproduces itself in the system, and although we cannot, perhaps, go so far as to say that the condition of body thus induced is essential to an attack, there is much to favour such an hypothesis.

Now, if we assume that the poison of cholera is a ferment, and reproduces itself upon a pabulum thus formed in the bodies of those whose vigour is, from any cause, below par, there are further circumstances in the known character of the disease and mode of attack which would lead us to think it not improbable that the poison may be received into the system, and pass out again without giving rise to any apparent symptoms, unless an irritant is applied to the gastro-enteric mucous membrane.

Why should a dose of salts run a man into collapse when cholera is epidemic, or "the smallest dose of tartar emetic produce excessive vomiting and purging, algide phenomena, and failing of the pulse,"[a] *the stools containing matter which, after undergoing putrefaction, can cause cholera in others*, unless some preceding change of a specific kind had been effected in the blood. If the dose of salts and tartar emetic are to be recognized as necessary causes of the symptoms in any given case, it follows that the prior change in the blood, attributable to the presence of a cholera epidemic, may have remained in the system and passed out of it again, at furthest on the cessation of the epidemic, without exciting an attack of the disease, if the dose had not been taken.

A third cause must then be recognized, as at least sometimes necessary to the accession of cholera symptoms, in the shape of some gastro-intestinal irritant.

Further, it would seem that the disease may be set going, prior to what the ancients would call "full concoction of the virus," by this

[a] Twining, Broussais, and Tighe, quoted by Cockle.

third cause, as the reproduced poison which exists in the blood when cast off with the serum of that fluid as alvine or gastric evacuations, is so far imperfect that it requires further development during decomposition of the discharges to render it capable of communicating the disease to others.

When we look at the symptoms and morbid pathology of cholera, and study the able treatises of authors of large experience and research, it would seem that conflicting opinions can only be reconciled by putting together some of the views of the writers on both sides, and assuming that the blood-poison produces a highly polarized condition of the ganglionic nervous centres, easily excited by the reflex action of some gastro-intestinal irritant into producing spasm of the muscular walls of the pulmonary and systemic minute arteries, imprisoning the blood within the veins, which are seen, on *post-mortem* examination, to be filled or distended with black blood, when, to use the words of Bell,[a] "the blood over-distends the cava and oppresses the heart, being still poured inwards from the extremities, to which their well-valved veins permit no regurgitation, it is necessarily driven back from the gorged vessels upon all the internal venous branches unprovided with valves. The renal veins are distended, and the returning current of blood from the kidney stopped; consequently, a first effect or symptom of such congestion is the cessation of the secretion of urine. . . . In like manner, the hepatic circulation is oppressed, impeding the secretion of bile. These two constitute the second class of mechanical effects or symptoms. At the same time another effect is produced by the same cause; the portal circulation, at first impeded by meeting the reflux from the vena cava, is presently reversed, and the blood is thrust back into the mesenteric veins till it distends their extreme ramifications on the mucous membrane, where it finds a species of vent, for from this surface the repellant force squeezes out the fluid portion of the blood into the bowels."

We may also go with Dr. Johnson so far as that one cause of the blackness of the blood in collapse, and of arrested secretion and diminished temperature, is the want of due oxygenation; for in the bloodless condition of the lungs, and the comparative stasis of the oxygen carriers (red corpuscles) we find enough to bear out these doctrines.

We can believe that although evacuation is a relief to the

[a] Braithwaite's Retrospect, Vol. xvii., p. 109.

engorged venous system, preventing that almost sudden death which occurs in cases unattended with vomiting or purging, yet that, as the relief is afforded at the expense of the vital fluid itself, which is said to be reduced sometimes to 6 or 9 oz.,[a] the patient often sinks from the effort of nature for his relief, as one sometimes sees a patient die from the effects of pulmonary hemorrhage consequent upon obstructive disease of the heart, when nature kills in her attempt to relieve.

By thus studying collapse as a compound condition, the result of these causes, we can explain the two facts which principally stand opposed to the old theory of collapse, and to the hypothesis of blood-poison, as it admits the possibility of collapse passing away, while discharges still continue and the blood is still inspissated; while, on the other hand, it explains how cholera can be arrested in the diarrhea stage by means which soothe gastro-intestinal irritation, and allay spasm, although the poison is thereby retained in the system.

We have taken up for cholera a position which we believe might be borne out by entering further into details of the symptoms and *post-mortem* appearances; but when such essays and reviews as those of Parkes, Johnson, M'Pherson, Bell, Cockle, Chapman, Braithwaite, and one of the learned physicians of our Cork Fever Hospital, Dr. Beamish, can be consulted, it would seem a work of superorogation to do more than refer to them;[b] and therefore we will conclude this imperfect sketch of cholera with a brief allusion to the treatment which was found beneficial in this epidemic.

Finding that an excessive thirst for cold water was an early symptom, and believing it due to gastric irritation as well as excessive drain of fluid from the blood, it was given in small quantities, as cold as possible, whenever called for. Although often vomited again and again, it was always found to do good; and its use was persevered in even after reaction had set in and consecutive fever e en established.

If deprived of all except one means of treating cholera, and given a selection, we should prefer cold or iced water to any other. It is nature's cure; the only one on which the patient turns his lack-lustre eye with a momentary glance of greedy pleasure. If retained

[a] Dieffenbach, Magendie, Michael Levy, Thologen, quoted by Cockle.

[b] We have only mentioned a few of the many authors whose works may be consulted with advantage. The modern literature of the subject is large; and we have had neither the opportunity nor the time to do more than glance at a portion of it.

even for a few moments in the stomach, it relieves the burning irritation, and directly and indirectly soothes the over-action of the ganglionic centres. If absorbed by the veins of the stomach, it liquifies the blood, and prevents that exosmotic shrinking and destruction of the corpuscles, and that hopeless disintegration of the blood which destroy life sometimes within a few hours after the commencement of reaction,[a] and in its minor degree causes that consecutive fever which is sometimes as fatal as cholera itself.

It introduces oxygen where that element is so much required, and it tends to restore secretion after the spasm has passed away. Turpentine fomentations and sinapisms to the epigastrium, hot bottles, blankets, friction with or without soothing or stimulating liniments, and other means of relieving irritation and spasm, and preventing the rapid abstraction of caloric, have a beneficial influence on the symptoms, and economize the failing vigour of the body.

Complete and absolute rest in the horizontal position must be enjoined, with a diet of milk and soda-water, and sometimes a little brandy.

In the early stage of cholera a good large dose of laudanum and chlorodyne (thirty to sixty drops of the one, with from twenty to thirty of the other) is most useful. If vomited, as it is sure to be if the stomach is full of serous fluid, a second similar dose should be immediately given, and is generally retained. It may be necessary, during the course of a protracted case, to repeat these medicines; but we have found five to ten drops of camphorated chloroform every half hour or hour the only medicine suitable to the stage of collapse.

As a general rule secondary fever may be allowed to run its course, except where there are head symptoms, which we have treated by blisters to the scalp, and digitalis with an occasional dose of hyd. cum. cretâ. Mustard fomentations to the loins and feet have been found useful; but, like other diseases, cholera and secondary fever must be treated on general principles, applied according to the symptoms observed in each individual case; and few diseases require closer watching, and the exercise of a more carefully discriminating judgment, in regulating diet, and anticipating local complications. Many cases baffle the most skilled and careful endeavours, but others, snatched from the very jaws of death, repay our anxious solicitude.

[a] Witness the return of the pulse a few hours before death, noted by Chapman and others.

ART. V.—*On Chloroform and its Medical Uses.* By CHARLES KIDD, M.D.; Member Royal College of Surgeons, England; Associate Member Surgical Society of Ireland, &c., &c.; London.

"Durch deine That und dein Kunstwerk
Mach' es Wenigen recht; Vielen gefallen ist schlimm."
SCHILLER.

AMONGST the latest applications of the principle of anesthesia under chloroform in medical practice, a few still remain and seem worthy of note in what may be styled the purely medical as distinct from the surgical uses of that agent. It might be desirable to see also what has been the amount of immunity from danger, if any, possessed by what are called "mixed vapours," ether, ether spray, &c., now generally supposed in some degree to supersede chloroform. It is very curious to observe still what a large amount of want of knowledge exists both in the profession and out of it, as to the real amount of safety that attends this agent, the real value of anesthetics in Midwifery, general practice, the safety of balloon inhalers, &c.

From various interviews with the late lamented Mr. Toynbee, I could perceive that in the treatment of sundry forms of deafness these associated especially with *tinnitus aurium*, he believed the inhalation of chloroform, probably by relaxing the Eustachian tube, favoured the cure. We might term this one of the medical, as contra-distinguished from the operative or surgical uses of chloroform. In one case of a lady, where I was induced to try chloroform at his suggestion, no little improvement was observable in the deafness; but the lady had heard such exaggerated reports of the danger of chloroform, she could not be induced to continue its use.

A very noteworthy case of decided hydrophobia has been published in detail this year, which occurred in Northamptonshire. The spasms of the throat, on attempting to swallow water or other fluids, were almost at once relieved by inhalation of chloroform. The patient's life was ultimately saved by the anesthetic. The suggestions which this case, and very many others of bad tetanus (so allied to hydrophobia) offer, are scarcely regarded at their full value in our lighter medical literature. Almost no case of tetanus, like almost no case of ovariotomy, ought now to be lost. Such is the triumph of a few years since a time we easily remember (at least in

London) when nearly all the cases of both were deemed hopeless, almost as much so as hydrophobia.

We have lived, perhaps, too long in a popular dread of chloroform. This need not be so. Novel writers and journalists have terrified the public ; and even in the Crimean war an official order was issued that it should not be used on account of the danger and trouble of sending complex inhalers and "mixtures." This is mentioned to explain why chloroform has been not more extensively tried in diseases like hydrophobia. Chloroform even is of infinite value in permitting the wound of the bite being cauterized, but it too often happens the dread of chloroform is as great as that of the bite itself. Another new application of chloroform, that scarcely deserves the name of surgical operation, proves very serviceable in hospitals. It must have come under the notice of visitors to these institutions how often and painfully the compression method in curing aneurism fails from the simple want of power of the patient to bear the pain of the clamp (too often a tourniquet) over the artery leading to the disease; with a continuous and steady experience now of something very like fifteen years observing this mode of treatment (especially in London hospitals), I cannot help believing it has very often, or almost uniformly, failed, on account chiefly and curiously of this intolerance of pressure or pain, the knife, too often as a very *pis aller*, had recourse to, when the patient was erysipelatous, or irritable and feverish, the quiet rules or *petits soins* of Bellingham or Tufnell set aside (never learnt, in fact, by house surgeon or dresser, to whose hands half the treatment was confided) ; the chief surgeon "comet-like, with his tail of pupils," as poor Dr. Addison used to say, sweeping by every second day, casting a doubtful glance at this "clumsy, tedious Dublin plan," and all too easily acquiescing in the request of the patient to have it laid aside. We mention this merely that it may be useful in any further or final examination of the "Dublin method," the plan, as Syme says, of those who "aspire to mediocrity" in surgery.

It is now proposed to apply the weight or clamp to the femoral in the thigh, to wit, for popliteal aneurism, the pain and erythema prevented by placing the patient well under chloroform. The plan has proved very successful in some cases; nay, the wise and good old Hunterian operation of ligature haply seems likely to be at some epoch superseded by this bloodless method; or peradventure by slipping an acupressure needle behind the artery. Age or

fashion thus succeeds age in surgery. "Ætas succedit ætati, nihil enim semper floret," as Cicero says. A witty friend, condoling humorously a little while ago, indeed, with our first operating surgeon, who doubted this Dublin plan, and the cure of cancer by injection, said there would shortly be no cancers to be extirpated, or arteries tied for aneurism ; so the great operative surgeons would grow jealous of anesthetics.

There are various other hints for the pure physician as regards chloroform and pain, and a few as to medical cases even where it is not wise, as far as I am of opinion, to recommend operation for the sake of the operation being without pain. I have known cases of what proved to be ordinary dropsy (ascites) in a rather marked form, operated on in the earlier age of ovariotomy diagnosis, by mistake, abdomen opened, followed by a terrific gush of serum; the wound, of course, closed up again at once ; but this has cured the dropsy permanently, the woman recovering without a bad symptom, and remaining remarkably well—quite a new person, in fact, years after. This unlooked for mode of treating ascites is not one that physicians will adopt; yet the cases are highly suggestive as to the curious tolerance of the peritoneum of being wounded, especially if the system be well under chloroform at the time, all foreign bodies, sponges, ligatures, &c., avoided.

We have, in so many words, a system of retributive balance of cases, if one had only time to look out for them, chiefly the consequence of chloroform administration, bad strangulated hernia, bad aneurisms (that in former days led also irresistibly to the knife); complex old dislocations that required ropes and pullies; bad tetanus, the despair of the practitioner, and many similar affections, all yielding now to milder methods and a steady administration of chloroform, or hypodermic injection of morphia, as first tried by Rhynd, also of Dublin, and adopted by Wood. But on the other hand the simplicity and unexpected perfection of this painless process has, perhaps, led to hazardous enterprises of chloroform, in ascites, delirium tremens, extirpation of spleen, unwise cancer-cutting, ligature of aorta; for I have seen all these under chloroform.

Three cases of what might well be deemed perilous medical cases, have been under notice during the past year in England, namely, extirpation of the spleen for what proved incurable disease, the cases all fatal. It is not often that one has an opportunity of seeing such devastation by disease. One of the patients bore the chloroform wonderfully well; one of the cases is given in *Guy's Reports* by

my sedulous and able friend, Bryant; the second is mentioned by Wells; the third was very similar to the two others. As medical cases they have a very direct bearing on the medical uses of chloroform. I fear they are instances of *nimia diligentia*, where patients wish for, or submit to almost any operation, as they know they may have chloroform, but where it is scarcely judicious for the physician to encourage such wishes; yet what can be done if there be dropsy and the patient wishes the spleen extirpated?

I have seen a little of what may be termed heroic surgery in London and Paris, but all put together has not produced the same sense of terror of a patient dying, as the unavoidable result of extirpated spleen. As reporter or writer of "Mirror" for *The Lancet* and other medical archives, I have watched or noted largely over a hundred ovariotomies—I have seen a ligature placed on the common aorta, the patient living forty-eight hours—one has seen both thighs removed, and the patient to recover—œsophagotomy, with a dentist's gold plate, found sticking—Cesarean sections—hernias, &c., by the dozen: in all these the benefit of chloroform is beyond estimate to the sufferer; but, like the cure of ascites by opening the abdomen, we can scarcely recommend extirpation of the spleen for leukemia. It is, perhaps, an unsteady kind of sequence to adduce, that because the function of the spleen is not indispensible to life (like that of the lungs, or pancreas, or kidneys), that therefore it may be extirpated without danger or accident to life. Such a patient will take chloroform admirably; but the surgeon will do well to be prepared for adhesions of the spleen, and injury of the large vein attached to this viscus; nay, the chloroform seemed to me almost to keep the patient alive, *malgré* the knife.

Amongst many questions for the physician such as these, and the undoubted importance of chloroform in hooping cough, gall stones, asthma, infantile and adult convulsions, a doubt is sometimes expressed as to chloroform in paralytic cases for surgical operation; but there is not any circumstance to contra-indicate its administration under such conditions, or even in decided brain disease or mania. Chloroform has been followed by only the ordinary or usual anesthesia, where exhibited in cases of marked paralysis (the remains of a previous attack of apoplexy leaving a clot in the brain); and it is very often given in lunatic cases without danger.

It may be useful to note, *en passant*, that there does not appear to careful observers any manifest superiority in what are termed "mixed vapours" over simple chloroform. Then as to local

refrigerents—in a case of Cesarean section, where the local application of ether was tried as an anesthetic, the wound failed to unite, the patient died with the wound unclosed; and I have heard of frequent instances of sloughing of such parts and necrosis of bone from excess of congelation by ether: in ovariotomy it has proved cruel and useless.

On the other hand there are obvious cases, such as of anthrax, for instance, or other diseases of the skin, as likewise instances of post partum hemorrhage in obstetric practice, where the ether spray has acted very well, as the most convenient form of topical cold or congelation, for arresting hemorrhage in the latter, or deadening the sensibility in the former class of patients. The local application of ice would act in a similar manner, but has fallen unwisely into disuse. The ether spray in ovariotomy cannot be advised by any one who knows that the only or chief pain (and it is sometimes very agonizing) is in tearing asunder the adhesions where it is impossible to apply the ether. In operations about the vagina and rectum also it always disappoints, too.

Various instances of death from "mixed vapours" have been published. Thus at a discussion of the Paris Surgical Society, M. Legoust recited the particulars of such a case at Lyons, and M. Giraldes one elsewhere—both ending fatally. Since then there have been others; and if I mistake not, the two most remarkable deaths in the past year, in America and England, were also from mixtures of ether and chloroform. Deaths from anesthetics are now not far short of three hundred cases, but it is no one's interest to collect them; and when I proposed to do so for the committee in Berner's-street, it was considered to be unnecessary.

As to the alleged importance of chloroform inhalation in pneumonia, as stated by Varrentrap, Helbing, and others, it may be reasonable (with our present knowledge of how that disease gets well of itself) to doubt many of the supposed cures. Not so, however, as to its very decided curative influence in asthma, hooping cough, laryngismus, hiccup, gall-stones, &c., as referred to previously. Chloroform, too, is invaluable in the severe cough of phthisis patients.

The effect of chloroform in lessening the severe spasms and pain in strychnine poisoning has proved as satisfactory and marked as its influence in tetanus and hydrophobia, gall-stones, or asthma. It is probable, too, that chloroform or ether (as hypodermic injection of similar agents has done) will prove of service in malarial fevers; especially ether, by its chemical action on the blood.

It may be objected that where a poison has entered the blood, as in hydrophobia or strychnine cases, the influence of chloroform locally to the nerves of the throat or larynx may not be effectual enough ; but here we will do well to place one fact of such a cure in contrast with any number of theories.

I believe the action of chloroform is not unlike that of a subtle agent of this kind which has entered the blood—anesthesia is not interrupted oxidation of tissues, as held by Sansom (for nitrous oxide produces anesthesia by excess of oxygen)—in all probability the phosphorized fat (protagon) of the blood corpuscles and nerve tissues is acted on by chloroform, as it is very markedly by carbonic oxide and ether. The action on the grey corpuscles of the brain ganglia (thalamus opticus corpora striata, &c.), whatever that be, is probably interrupted, and so is sensation.

A theory has been offered that chloroform acts as an anesthetic by action on the vaso-motor nerves, lessening the chemical oxidation in the brain. This is probably only a coincidence. Like my friend Lionel Beale, I cannot believe in these oxidation ideas of Bence Jones.

The physician is much interested in what is the exact mode of action of chloroform, when and how it is dangerous, &c., and yet we too often find the patient frightened, and likes not to use it. In America, Germany, and France, the experiments of the physico-chemical or oxidation school of Sansom and Harley are held to be nearly useless. Animals so asphyxiated are not at all under the same condition as patients in hospital. We do not smother the latter in closed vessels. Sabarth and Giraldes agree with me in adopting rather the idea of Brown-Séquard that it is rather by active reflex influence due to the sudden irritation of the branches of the par vagum in the lung that chloroform proves fatal, at least in the cases where the heart's action stops before the respiration. It is only in a certain *incomplete* stage of the anesthetic process, not where motive power is abolished : in other words, in trivial operations, mostly and before the patient is well "put under" the chloroform (not in ovariotomy or large amputations, or in deep anesthesia) that accidents have occurred. Almost like a nettle (unpopular as the idea may be) chloroform stings when lightly touched ! causing laryngeal spasm.

Sabarth gives thirty-six deaths from ether, and the highest American authorities have now decided it is quite as dangerous as chloroform. Mixed vapours and complex instruments for inhalation,

Giraldes says, are not only dangerous, but a "cause of danger" in themselves. In practice it is better to administer ether and chloroform separately rather than mixed. Alcohol, indeed, is wasted in such mixtures, as it has to be squeezed out of the sponge or inhaler. I always use a simple inhaler in form of cone.

Chloroform narcosis differs very widely from ordinary sleep. A cannon may be fired close to the ear, and it does not disturb the patient under chloroform ; but as Wordsworth says, and we all know:—

> "From the anarchy of dreaming sleep,
> With touch as gentle as the morning light,
> We wake us daily to the power of sense,
> And reason's steadfast rule."

It is a mistake in delirium tremens and medical cases to give chloroform, therefore, simply as a narcotic, especially in the delirium of typhus.

I very much doubt, in fact, the wisdom of classing chloroform, with the physico-chemical school, alongside common narcotics, like opium; and if this idea of the action of such sleep or narcosis be true, that it arises from a specific influence on capillary vessels and vaso-motor nerves, then is belladonna the farthest removed from the medicines styled narcotics or sedatives. This vaso-motor action is probably a simple coincidence of no importance or moment. Sleep is not the same as chloroform anesthesia, as held by the chemical school; an infant or a lunatic patient while asleep is sometimes placed under chloroform; but he wakes out of sleep in the middle of the administration. In delirium tremens and delirium of fever chloroform has been tried, especially in the latter, to procure rest, but in both affections with equally dangerous consequences. Indeed, Corrigan has published two cases ; in one the death was instantaneous ; in the other in less than an hour, from unexpected collapse, sudden blueness of the lips, cold surface, &c.; while in a third the patient scarcely recovered.

Chloroform has been exhibited in the late and previous epidemics of cholera:—Mixed with equal parts of oil, and rubbed externally, it gives much relief in the cramps of cholera, or rather the neuralgic pains so common in fingers and toes in cholera. Were not the "spasm" theory of cholera of Dr. George Johnson rather doubtful, we might suppose it acted in relieving such spasm also.

It is well to keep in mind that all our late accidents from anesthetics have been (as mixed vapours now are a sort of fashion)

from mixed vapours. Two accidents, one fatal, have come under notice recently, where Clover's apparatus has been the one in use, thus bearing out the view of Giraldes as to complex instruments. All the facts of hospital anesthetics, as well pointed out, too, by this able writer, Sabarth, and Lallemand, Perrin and Duroy, are opposed to the conclusions from experiments on animals of Harley; the deficient oxidation theory of Lister and Sansom, as well as the opinion of these writers, that the chief danger is from fatty heart and over-doses. Pure chloroform, in other words, is safer and safer every year, according as it is exhibited with attention, fearlessness, and delicacy. And, finally, follow must we the words of Schiller, observing the natural facts and avoiding popular errors—that ether spray answers in ovariotomy, or that "mixed vapours" and balloons are free from danger; better far to simplify anesthetics and administer ether and chloroform *separately*. The latest researches in France corroborating this view, that the excitement or dangerous stage of the administration is essentially due to the action on the lungs and larynx, not to a poisonous deoxidation in the blood. Complex inhalers, *omne ignotum*, *&c.*, to prevent deep poisonous effects—rather showy and brilliant like operations on the spleen—experiments on animals of Harley—only like those of Orfila, indicating mischief from very simple medicine, but where he omitted to mention he had ligatured the œsophagus and its nerves! The "law of tolerance" in chloroform, too, is a curious but true thing, only observable in hospitals. This is my experience of watching some twenty thousand operations under chloroform. It is quite irreconcilable, however, with the caution of patent inhalers or "mixtures" to keep off cardiac syncope. It is still held by cautious, slow physicians in London, who patronize such things, that even in midwifery practice, as our grandmothers had fine children without chloroform, so ought all poor women gloomily in childbirth of the present, go through the most harassing or dangerous labour without this deoxidizing poison! The heart's action, it is curious (in opposition to all such views and vivisections), is less active only during the excitement stage, owing to the inhibitive function of the vagus. Depressing emotion, prolonged anxiety, at the idea of losing consciousness, doubt and fear as to the coming pain, idiosyncrasy, &c., aggravating this condition, all absent in midwifery cases, where cheerfulness and simplicity are studied, and the puzzle of inhaling machines removed. In all cases, indeed, where ruptured uterus is to be feared, chloroform proves a direct blessing and advantage to the

patient in childbirth. This is the experience of my excellent friend, Braxton Hicks, and many other obstetricians of the advanced school. Natural facts have still, however, to contend much against popular error or prejudice. Opinionem enim commenta delet dies naturæ judicia confirmat; but we have no fear for the result.

ART. VI.—*Observations tending to show the Identity of the Fungi of Favus and Tinea Circinata.* By JOHN M. PURSER, A.B., M.B., T.C.D.; Demonstrator of Anatomy in the Carmichael School of Medicine.

IN an interesting paper[a] by Dr. M'Call Anderson, recently published, in which he attempts to prove the non-identity of the fungi which produce the diseases known as favus, tinea tonsurans, and pityriasis versicolor, the following statement occurs:—"Of the numerous instances on record of the transmission of favus and tinea tonsurans *from the lower animals* by contagion or inoculation, favus has always given rise to favus, and tinea tonsurans to tinea tonsurans" (p. 234). This conclusion is supported by several cases both from Dr. Anderson's own practice and from that of Bazin, Gerlach, Bärensprung and Köbner, and, so far as I know, at the time of the publication of the paper in question no instance of a contrary nature was extant. The following cases, therefore, in which favus appears to have produced tinea circinata (which Dr. Anderson and most other dermatologists believe to be identical, as far as the fungus is concerned, with tinea tonsurans and sycosis), both by accidental contagion and intentional inoculation, may be of some interest as bearing on the question, still unsettled, of the identity or non-identity of the fungi which occur in the different epiphytic diseases of man.

In October last I was called on to attend a family, four members, of which, all adult females, were suffering from ordinary tinea circinata. The spots affected the hands, arms, and shoulders; were of various sizes; presented a centre of sound skin and a spreading furfuraceous edge; itched a good deal; and, in short, presented a typical example of ordinary ringworm, so much so that, contrary to my usual custom, I neglected to make any microscopic examination of the epidermic scales. The disease was recent, and yielded readily

[a] British and Foreign Medico-Chirurgical Review, July, 1866.

to treatment. A few weeks afterwards, when the spots were all well, or nearly so, on talking over the possible manner in which the disease might have been contracted, I was asked by one of the patients if it could have been taken from a cat, mentioning at the same time that one of her cats had had a spot on its paw, which she, thinking it was dirt of some kind sticking in the hairs, had tried to pick off, but found that her attempts made the paw bleed. Shortly after this she remarked spots of ringworm on her own hands. On inspecting the cat I found that it had on its left fore paw a small spot, from which the hairs were almost completely absent: this was covered by a raised crust of dry powdery consistence, and sulphur yellow colour, through which passed a few stunted hairs. There was no cupped appearance, but the naked-eye characters of the crust resembled much those of some varieties of favus. I learned further, that another cat living in the same house had had a similar patch on its nose, which was now well. I inquired as to the mice, but could get no reliable information. Microscopically, the crust from the cat's paw was seen to consist almost entirely of the spores and filaments of a fungus. The spores were large, many of them oval, and present in considerable quantity. The filaments were branched and abundant. These appearances were identical with those which I had seen in cases of undoubted favus; but mistrusting my own limited experience in a matter of such delicacy as the diagnosis of a fungus, I sent a portion of the crust to Dr. Tilbury Fox, whose opinion on such a subject no one will be inclined to question. He pronounced the fungus to be an admirable specimen of the *achorion schönleini*, the parasite of favus. In the meantime I had inoculated my own forearm with the fungus, by scraping off the superficial layer of epidermis, and laying on the denuded place some of the crust reduced to powder, and covering the whole with a piece of sticking plaster. The plaster was removed after a hundred and twenty hours, during the latter part of which time there was intense itching of the inoculated part. There then appeared a circular spot on the forearm, the shape and size of the plaster. The centre was covered by large, loose flakes of epidermis, separated probably in consequence of the retention of the perspiration. They adhered by only a few points to the subjacent parts, which consisted of skin, reddened and softened from absence of horny epidermis, but presenting no sign of eruption. Around this was a slightly raised and furfuraceous border, and outside this again a circle of inflamed skin covered with minute vesicles. After

exposure to the air for some hours, the central scales separated; the skin beneath assumed a more healthy colour and appearance, while the spot continued to spread centrifugally by the formation of successive crops of vesicles. These vesicles were extremely small, of subglobular shape, formed with great rapidity, and dried up quickly, leaving a furfuraceous crust. There was some difference of opinion among the physicians to whom I showed the spot as to what the disease should be called; but those who carefully observed the healthy centre and the spreading edge thought that it most resembled herpus circinatus, while all agreed that it had not the least resemblance to favus. Part of the crust was found by the microscope to consist chiefly of epidermic scales, mixed with which were a few pus or exudation corpuscles, a considerable quantity of the mycelium of a fungus, and a few spores. A specimen was sent to Dr. Tilbury Fox, who stated that the mycelium presented the characters of *trichophyton* rather than *achorion;* that it differed from the latter in being smaller, less freely branched, and containing fewer granules. The spores were small and round, none large or oval. He further says, "You clearly have a condition which presents, microscopically, the characters of tinea circinata (herpes tonsurans), but which may be only an early stage of favus; but this is exactly what, I argue, arises." Dr. Fox was also so kind as to show specimens of both fungi at the Pathological Society of London. After some days, as the spot continued to spread with unaltered characters, and as the itching had become so severe as seriously to interfere with my comfort, the crusts were removed. They were never renewed. The patch spread but little after that. It gradually died away with considerable desquamation, leaving a brown, discoloured spot, which persisted for several weeks. I had intended to attempt re-inoculation from my arm to a cat or rabbit, but was prevented at the time. Subsequently a second inoculation was made on another part of my forearm, which produced a diseased patch, presenting the same appearances, both to the naked eye and microscopically, as the former, but before I could continue the experiments, circumstances occurred which obliged me to relinquish the entire investigation.

It is unnecessary here to dwell on the mere fact of the transmission of disease from the brute to man, an event which is universally allowed at present to be not only possible but of frequent occurrence; but, as I have already stated, in all the hitherto recorded cases, favus has produced favus, and tinea

tonsurans tinea tonsurans, whereas here we have favus in the animal giving rise, by contagion, to tinea tonsurans in the human subject; and the fungus, which, when growing on the hairy skin of the cat, under what we may suppose favourable conditions, appeared as *achorion*, with large spores and well-developed mycelium, on being transplanted to the human skin, where the hair follicles were few, and moisture deficient, changing its form to that of *trichophyton*, which is considered by many to be only an imperfect development of *achorion*. A change of a somewhat similar kind, produced also by transplantation of the fungus from a hairy to an uncovered part, is mentioned by Dr. Fox;[a] but in this instance both forms of disease occurred on the same patient, favus of the scalp giving rise to tinea circinata of the shoulders and neck.

It is not my intention to go over all the evidence which has been adduced by writers to show that the apparently different fungi met with on man are all varieties, or different stages of growth, of the same plant, the diversity in form being due to differences in the soil on and the conditions under which they grow. It is, indeed, difficult to understand the opposition which, in the face of such evidence, this view still receives, at a time when the limits of variation in form of animals and vegetables, produced by external circumstances, is acknowledged by naturalists to be so wide. When we consider the slight differences in conditions of growth, which, in experiments on the germination of fungi, have sufficed to produce very different forms, we should rather be surprised that the variations occurring in the transmission of parasitic fungi from one person to another are so rare. Thus we read[b] that "Dutrochet took a solution of albumen, and examined it from time to time. At the expiration of a year nothing had occurred; he added some acid, and monilia was produced; conversely he added an alkali, and botrytis resulted. Thinking that the agency of the reagent might have had some special influence, instead of albumen he used fibrin, and, curiously enough, he obtained just the very opposite result. Fibrin and alkali grew monilia, and fibrin and acid botrytis." There is some reason to believe that if the history of the source of contagion in each case of parasitic skin disease could be made out, and if more care were given to the determination of the microscopic characters of the fungi, instances of variation in the latter would be found to be more frequent than is at present supposed.

[a] Skin Diseases of Parasitic Origin, p. 126.

[b] Fox, loc. cit., p. 100.

In conclusion I have to notice a paper,[a] lately published by Dr. Salisbury, in which he describes a disease very common in cats, produced by the growth of a fungus, and very readily spreading by contagion to human beings, giving rise in them to a disease very like ordinary ringworm, but differing from the latter so much as to lead Dr. Salisbury to call it "a newly discovered disease," and to give it a new name, derived from its origin, *trichosis felinis*. It affects principally young cats, rarely spreading to their elders. The milk with which the paws and face of kittens are often smeared is believed to furnish a suitable soil for the germination of the fungus. Of human beings children are chiefly attacked. In them the disease spreads in isolated patches to all parts of the surface, often in a few days time. The patches are of various size, circular or oval in shape, slightly elevated above the surface, red and covered with scales and little elevations, marking the position of the hair follicles. The colour of the patches is deeper, and the irritation and itching more severe than in ordinary *trichosis*. The fungi also differ. "In ordinary ringworm (*trichosis furfuracea*) the fungoid cause exists mostly in the spore state. The plant does not advance beyond its cell condition. Its growth seems to be confined simply to cell-multiplication by pullulation. In this disease (*trichosis felinis*) the plant cells multiply by pullulation, and these advance to the filamentous stage of growth." From the drawings of the fungi which Dr. Salisbury gives, the spores are seen to be oval, containing one or two nuclei, provided with buds or off-sets, or occurring in chains. The mycelium is branched, jointed, with cellular interruptions, and contains no granules or spores. These characters are unaltered by the passage of the fungus from the cat to the child. In this respect the cases differ materially from those detailed in the present paper.

Art. VII.—*Cases in Private Practice of more than Ordinary Interest.* By John Francis M'Veagh, M.D., L.K.Q.C.P.

As I believe it is incumbent upon every physician to bring before the notice of his profession any case that may prove instructive, or

[a] A brief description of what appears to be two newly discovered skin diseases, one originating in the cat, the other in the dog. Both cryptogamic and contagious, and both capable of being transmitted from the animal to the human body. By J. H. Salisbury, &c.—American Journal of the Medical Sciences, April, 1867, p. 379.

possess any unusual amount of interest, I beg leave to present the following gleanings from notes of cases that have lately fallen under my notice, which many of my professional brethren have witnessed, and which I trust may not be altogether devoid of interest to my readers. The first two cases I believe are unparalleled in medical records, from their more than ordinary complications.

Case I.—*Alarming Cardiac Irritation occurring during Pregnancy—Induction of Premature Labour—Recovery.*

I was sent for on the 30th July, 1866, to see a lady, residing in the immediate suburbs, who was, I heard, in a most dangerous state of prostration from some heart attack. It will be better, ere I state her appearance at my visit then, to digress a little, and give an outline of her previous history. She was always a delicate woman, nervous temperament, remarkably fair and interesting. Her father was dead, having succumbed to a hemiplegic attack; her mother living, but very delicate, and of a tuberculemic diathesis. She lost two aunts, by the mother's side, from phthisis, and last year a sister died of the same malady. She has several sisters living, all of whom show unmistakable foreshadowings of tuberculemia. She has been married about six years, and has had three children, two of whom are living and healthy; the third child died early last year from croup. In each of her confinements she has had most severe hemorrhage, but in the last labour, occurring at the full period, I never witnessed a more fearful case of flooding; so much so, that Dr. Denham, who saw the case with me, could not believe that she would rally from it. She always had an irritable heart, but no sign of structural lesion. She never had rheumatic fever or any renal disease. On the day of my visit, she was about entering on the eighth month of pregnancy. I found her propped up in her bed in a most fearful state of distress from orthopnea. The action of the heart was most excessive, one minute violent pulsations, then fluttering, then total cessation for a few seconds, with fainting fits, pulse countless, the rhythm of the heart so deranged as to render neither sound correctly audible; no cardiac dulness, slight fremissement, no appreciable pulmonary congestion, but loud bronchial râles audible with puerile respiration in both lungs, and cardiac impulse every place; bowels free, and kidneys acting freely; urine healthy and not albuminous; no œdema of feet; fetal movements normal; abdomen not much enlarged, even less than would be expected at

the eighth month; no sign of uterine action. There was no assignable cause for her attack, no excitement nor fright, or any mental anxiety, but the attack was rather sudden in its seizure, though she felt a good deal of palpitation for a few days previous to my seeing her. My plan of treatment was at once directed to allay, if possible, the excessive cardiac irritation, and support her strength, resolving for the present not to bring on her labour, both from dread of hemorrhage and her alarming weakness. I gave her large doses of hydrocyanic acid, applied sinapisms to the cardiac region and at the root of the lungs, lavements with assafetida, diffusible stimulants, champagne, ice, &c. In the evening she was a little easier, but could not lie down, so we had to make her as comfortable as we could in a semi-recumbent position for the night. On the following day the symptoms were about the same, only that she had to be placed in an erect position in an arm chair, being unable to bear her former position, for fear of being suffocated. I applied a large blister across the cardiac region, which, she said, on my evening visit, had relieved her a little. For the next three days she remained about the same, but could not get any sleep, and now severe diarrhea set in, which added much to her sufferings.

On the morning of the 4th August, œdema of the lower extremities was visible, and she became more restless, and the attacks of orthopnea more severe. I now had the valuable assistance of Sir Dominic Corrigan in consultation, and he took the greatest interest in the case. He thought with me that in part the cardiac symptoms were induced by her pregnancy; but he was afraid that there was also some pulmonary irritation, such, perhaps, as general softening of a mass of tubercles in both lungs. We debated about the propriety of bringing on her labour; but resolved to wait for some time longer. He ordered her, in addition to the remedial measures I was adopting, the compound spirit of horse radish in doses of a tea-spoonful frequently. During the next three days she was no better, but all the bad symptoms on the increase, œdema increasing rapidly, suppression of urine, excessive perspiration, alarming prostration.

On the morning of the 8th she was almost moribund, delirious all night, and every appearance of approaching dissolution, so much so that all her family took their farewell of her. At 11 a.m., Sir Dominic Corrigan saw her with me, and we also had the valuable assistance of Dr. Denham, and we agreed to give her the only chance of saving her life by inducing, if possible, premature labour. At 12 the membranes were ruptured, but only about a pint of liquor

amnii came away. Up to about 6 p.m., she had scarcely any relief, but soon after she complained of some uterine pain, and expressed as feeling a little relief from her heart. At about 8 p.m., the pains increased, and we were able to carry her from the chair, where she had been propped up for eight days previously, to her bed, where she lay in a semi-recumbent position. At 10 the pains had increased, and on examining, per vaginam, the os was beginning to dilate. After each pain she became excessively weak, so much so that I had to give her brandy as well as champagne freely. At 12 the os was more than one-half dilated, and there was slight hemorrhage. From this until 4 a.m., the labour steadily progressed, and at half-past four she was delivered of a living female child. There was a good deal of hemorrhage, and I thought my poor patient must sink; however, by keeping steady pressure on the uterus, inserting successive pieces of ice into the vagina, and pouring down champagne, she gradually rallied, and at 8 the cardiac irritation seemed much relieved.

During the 9th August, the œdema began to disappear; kidneys acting; fits of orthopnea less, and able to lie down better. Her mind more composed and rational now in every way, asking after her child, &c.

10th. Progressing favourably; all the cardiac symptoms improved. Her little baby died suddenly this morning in convulsions. For the next week matters went on comparatively well, only that she seemed so exhausted, despite all dietetic and remedial means adopted to support her strength; and now, to add to her danger, most fearful perspirations set in. I never witnessed anything to equal them, not even in the worst cases of articular rheumatism. Every half hour almost her night dress and sheets would be saturated with the exudation. I gave her opiates—quinine with citric acid, tepid sponging—but all to no avail, as nothing seemed to check the fearful discharge from the skin. It occurred to me now the wonderful effects I had so often witnessed of late in the benefit of oleaginous inunctions in the night sweats of hectic, so I resolved to adopt such with this patient, and directed the nurse to rub her, *a capite ad calcem*, with oil of sweet almonds three times a day. This acted with wonderful success, and the terrible drain was stopped almost by magic, and from this day she gradually progressed to convalescence.

During the long time I was attending her afterwards, I made several careful explorations of her chest, but could not satisfy myself as to the existence of any organic cardiac mischief. A slight murmur

was often audible towards the right clavicle, at other times it was absent; no appreciable dulness over the heart; valves healthy; the left ventricle may be slightly enlarged as evidenced by the violent impulse. No certain pulmonary mischief discernible; but respiratory sounds prolonged under right clavicle more than normal.

Remarks.—This case presents many points of interest to the physician. The very rare complication during pregnancy of such dangerous heart symptoms was one of unusual anxiety to treat. The danger the patient was in from these symptoms, and, on the other hand, the dread of fatal hemorrhage to which she was liable if we induced labour, were matters of grave importance to decide upon. If such a case was to occur again, I would not hesitate, but at once induce premature labour, as it was evident in this case to have been the salvation of our patient. The cardiac symptoms most likely were nearly all referable to reflex action, though they simulated in every way structural lesions of that organ. On the night of the 7th, whilst sitting beside the patient, which I did all through until morning, you would imagine that you had a case of endocarditis before you. The delirium, fainting fits, sense of impending dissolution, cold sweats, &c., all were depicted in this case. I may mention that this lady at the present time (July) is quite well; has gained flesh; no cough; sometimes feels a little palpitation, but is able to enjoy life, and attend to all her domestic duties.

Case II.—*Placenta-Previa—Induction of Premature Labour at Six Months—Choleraic Diarrhea—Croup—Death.*

A lady residing in the north side of the city called on me in the middle of last September, complaining of excessive vomiting and nausea. She suspected she was pregnant about six weeks. I had attended her in her previous confinement only, which took place about eighteen months ago. She had two previous labours antecedent to her becoming my patient—one in England, the other here. The child born in England died there of croup. The other two children living, but prone to threatenings of croup. Her mother died of pulmonary disease. Her father living and healthy; married again, and has a large family by his second wife, all of whom were very liable to croup. The labour that I attended her in was an ordinary case of natural labour, and from

which she made an excellent recovery. Her child was a fine healthy girl, and she nursed her for ten months. She was always healthy, of a cheerful temperament, but was peculiarly nervous about croup. On the occasion of her visit to me I had no doubt but that the sickness and nausea she complained of were due to her being pregnant, and I gave her draughts of bismuth, with acid. hydrocyanic., and subsequently oxalate of cerium, which relieved her. The next time I saw her was at the end of October, and she was then suffering from a severe bronchitic attack, which, by treatment, was soon got under. I did not see her again until early in December, when she came into my study in a great fright, saying she had a sudden change on the day previous after a long walk. I ordered her to remain quiet at home, and to let me know if the discharge returned. On the following Sunday, being in her neighbourhood, I called to see her, but heard she was quite well, and at Church. In about ten days she again called upon me, and said she had another sudden discharge of blood, and felt very faint afterwards, and that she now felt the movements of the child. I sent her home, with injunctions to remain in her room for a few days, and put her upon acid. gallic., with acid. sulphuric. dilut. tincture cannabis indicæ, &c., and directed her to send for me the next time any attack of hemorrhage occurred. Shortly before Christmas she had a slight attack, for which I saw her, and on examining her per vaginam, as the os was slightly patulous, discovered the placenta presenting. The cervix was shortened, but it was still most difficult to reach the os internum. I again placed her on the gallic acid mixture, and enjoined strict quiet. During Christmas she was very well, so much so that on New Year's Day she entertained her family to dinner, but, from the exertion, on the following day she had a bad attack of hemorrhage. I saw her on the 2nd January, but the attack had passed away; she had no pain. Things went on pretty well until the 18th January, when I was sent for early that morning, as the membranes had ruptured spontaneously, and a very large quantity of liquor amnii had escaped. There was no hemorrhage, and on examination the placenta was still lying across the os internum; but on using the second finger I was enabled to reach some other presenting part, which I could not well decide upon. She remained free from hemorrhage until the 20th, when a very severe attack came on, but when I reached her house it had ceased. I was prepared to use the *tampon*, but as the discharge had ceased I waited, as I made

up my mind to bring on her labour. Dr. Denham saw her with me on the 21st, and he agreed with me that it would be a risk to delay the induction of premature labour any longer. I gave her two table-spoonfuls of a mixture containing 2 drachms of the liquor ergotæ to ʒx of water, with some chloric ether, every two hours, commencing at 6 p.m. on the afternoon of the 21st, and soon after the second dose, at 8 p.m., labour pains set in. At 10 the os was nearly fully dilated, and a foot and the cord presented. At 11 the labour was over, and she was delivered of a living female child. The placenta followed instantly after the head was extracted. There was a good deal of hemorrhage, and my patient seemed much exhausted; but by applying restoratives and the usual means, she rallied, and when I left her at 4 a.m. on the following morning she was very well.

22nd.—On visiting her at 10 a.m. this day she was very excited, but the nurse informed me that some family matters had fretted her. Her pulse was quicker than normal, but all the uterine functions were going on favourably. For the next three days she seemed to progress pretty well—uterine symptoms normal—secretion of milk natural. However, there was great restlessness and tendency to insomnia. She complained also of being very weak, despite a most generous dietary which I gave her all through.

On the 26th she was very weak, and could not pass water, so that I had to use the catheter; and on the 27th she was attacked, without any cause, with most severe cholera, vomiting and purging, the latter resembling thin gruel. I put her upon sugar of lead and opium, turpentine fomentation, lavements of starch and quinine, and the most powerful stimulants, as she was very prostrate. Dr. Denham saw her with me this afternoon, and approved of the treatment.

28th.—Much better in every way; pulse improved; more cheerful; no vomiting; diarrhea ceased; uterine symptoms favourable.

29th.—Much better to-day in every way; able to pass water herself; pulse stronger; appetite good; countenance more healthy.

30th.—On visiting her this morning she complained of hoarseness, and said she must have caught cold. No cough, nor sore throat or dysphagia. I put a hot cataplasm of linseed meal across the throat, first having ordered the nurse to put a mustard plaster over the trachea. In the evening she was no better, and could

scarcely speak. No pain over the larynx or trachea; said she felt better than ever only for the hoarseness; had the acetum lyttæ painted over the trachea.

31st.—It was evident now that my poor patient was labouring under the very disease that she most dreaded, pure membranous croup, as the true type of the malady was fully apparent at my visit. The distress in breathing was now considerable, and she vomited up a large piece of the true croup membrane. Stridulous râle all over the trachea; no pulmonary complication; no diphtheric appearance; pharynx, uvula, palate, all healthy and natural colour. I put her on calomel and Dover's powder; hot fomentation across the trachea; inhalation of steam; lavements of beef-tea, brandy and quinine, &c. I saw her again at 1 p.m.; no improvement; ejecting up large quantities of false membrane, exactly resembling parchment. In the evening no improvement.

February 1st.—Nothing better; had thrown up large masses of false membrane; disease extending to left bronchus, to persevere in remedial means, and to dress blistered surface with mercurial ointment. I paid her frequent visits during the day, but she was not better.

2nd.—Much worse; weaker, and not able to eject the masses of false membrane. Dr. Stapleton saw her with me this afternoon in case that he might deem it of benefit to open the trachea, but he would not advise it. He approved of the plan of treatment. He had never before witnessed a case of pure croup in an adult. He was satisfied fully of the nature of the case, and saw the masses of false membrane that had been ejected.

3rd.—Much worse in every way; unable almost to lie down from the fearful attacks of smothering; quite conscious of the nature of the disease and her danger. In the evening she was evidently sinking, and her suffering most agonizing to witness. Nothing seemed to afford her any relief. At 3 a.m. on the following morning she asked me could I do nothing to save her, after which she fell back exhausted, and sank at 4 a.m.

Remarks.—This was a most remarkable case, not only for its complications, but for the very rare occurrence in an adult of the malady that terminated her life. I never met with a case of pure membranous tracheitis in an adult before, and those amongst my professional brethren who heard of the case had never likewise known a similar. I believe there are two on record. The croup membrane was the most perfect specimen of the exudation I have

ever seen. The first piece was about the size of the trachea, or rather it looked like the windpipe that had been vomited up. This specimen was unfortunately thrown away; but I have preserved several large pieces which I will have great pleasure in showing to any of my professional brethren. It was a strange coincidence, too, that she was attacked with the very malady that she always through life had such a horror of! How such a disease could originate at such a time is strange. She had been exposed to no chill, nor to contagion, if ever such could be classed amongst contagious maladies. Some cause of blood-poisoning, however, may have existed, as the cholera attack looked very like such. I had the sewerage of the house and locality carefully examined, but nothing deleterious was discovered. We know that after parturition the system is very liable to take on septicemia, both from causes *sui generis* and from other external causes, but in this case all the *post partum* symptoms were favourable. There were no portions of the placenta or membrane left in utero, and the lochial and mammary secretions were normal. The simple loss of blood before her labour could not have induced croup. To what then could we attribute the advent of this fell malady? Could we trace it to any hereditary predisposition, or was it merely a case of pure croup, occurring sporadically at an age most unusual for such diseases, as far as we know of them, to occur?

Case III.—*Gangrenous Eschar of the Tonsils—Death.*

On the 28th December last, a lady residing in the county ——, brought her daughter to town to have my advice, being alarmed about her throat, for the last few days especially. The young lady was nearly ten years old, and on entering my study a gangrenous odour was easily recognized. On looking into her throat, both of the tonsils were covered with a black slough, enlarged and dipping into the pharynx by elongated fringes. The latter had a granular appearance, but was apparently healthy. On using the laryngoscope the epiglottis and rima were found congested, but no extension of the disease was then visible. Besides, there was no hoarseness, cough, stridor, nor any tracheal sign of disease, and the lungs were healthy. The voice nasal, and a glairy discharge from both nares; the uvula and hard palate healthy; but the soft palate and arch swollen, but not ulcerated. There was not much dysphagia, but total anorexia. Pulse, 130; skin dry, and burning thirst; urine

scanty; bowels confined; pinched and wasted expression of countenance, despite the most cheerful account the little patient gave of of herself, as she said she only felt a little annoyance from the throat and constant desire to be swallowing. The history of her case is as follows:—In the June previous I had occasion to pay three visits to the country to see another member of the family, who was seriously ill; and on the occasion of my last visit this young lady was brought in to see me by her mother, as she was not quite well. I remarked that she was suffering evidently from some gastric irritation, and advised them to see the resident medical attendant of the family, in case she was not better. I heard nothing further of this case until August, when some of the family called on me, and then I learned that my predictions were true about their youngest daughter, as, after seeing her in June, she had a severe attack of gastric fever, but that she was quite well now, and at their own place at the seaside. I did not see the young lady again until October, when she was brought to me casually on their return home to the county ——, but not to see me on her own account, as I was attending another member of the family. I remarked that she was very thin, and her voice nasal; and on looking into the throat was struck with the strange granular appearance of the tonsils, which were enlarged, and looked very much like as if the inside pulpy part of a fig was smeared over them. However, she complained of no uneasiness from them; no dysphagia; pulse quiet; appetite good. I advised her mother to watch her throat, and have their medical attendant to see her when they reached home. I brushed the tonsils over with dilute nitric acid; gave her a wash, containing chlorate of potash; and syrup of bark, three times a day in doses of a teaspoonful. I may as well remark here that about a month previous to this visit she had a severe fall, and hurt her nose; but this accident was kept a secret both from her family and myself up to this period, and it was not until near Christmas that she mentioned this matter to her mother. When brought to me on the 28th December, I asked the mother what treatment had been adopted by their own medical attendant. She replied that Dr.—— had seen her now and then, but did not think seriously of it, and had merely directed the governess to brush the throat with a solution of caustic. However, on Christmas-Day the family noticed the peculiar odour, and got alarmed, so resolved to bring her up to town. As there was no further time to be lost, though I mentally gave up the case as hopeless, I directed the mother to remain in

town; and as the family had a house in ——square, she at once consented, and had a bed-room prepared without delay, and got the assistance of one of the Infirmarian Sisters. I saw my patient in the evening, and brushed the sloughing mass well with the butter of antimony; ordered gargle of infusion of bark and potassæ chloratis, and the same lotion to be injected through the nostrils; inhalations of steam, lavements of beef-tea, brandy and quinine; syrup of bark every two hours, and the most nutritious dietary, such as jellies, soup, wine, &c.

29th.—My patient expressed herself better to-day, and that she could swallow easier. She vomited up, after gargling, a good deal of sloughy matter; discharge from the nose improved; gangrenous odour the same; bowels confined; tendency to nausea. The throat looked healthier, and the sloughs separating. To continue the treatment. In the evening she was about the same; throat paining her; ordered a little grey powder, and Dover's powder, and a lavement early in the morning, to free the bowels—to inhale carbolic acid, &c.

30th.—No radical improvement; odour the same; brushed the tonsils again with the butter of antimony; bowels free; appearance natural; fever very high; takes her nourishment, wine, medicine, &c., regularly; is most cheerful, and says she is quite well only for her throat.

31st.—No change for the better; complains of being deaf in one ear; gangrenous odour the same, despite all the local applications; feverish symptoms very high, particularly on my evening visit; sleeps well.

1st January—No improvement; applied the caustic to the ulcerated surface; deafness increasing; more dysphagia; slight tendency to diarrhea of an ochre colour, and very fetid; odour of breath the same; ordered to persevere in the remedial means.

2nd.—No change for the better, though the patient herself was so cheerful, and was reading a book on entering her room, and expressed herself as being much better; but the nurse's report of the night was more unfavourable, as she was delirious now and then; very weak, and tending to perspiration; deafness much worse; throat painful; very little appetite; anxious only for ice. Dr. Banon saw her with me to-day, and pronounced the case as one of gangrenous ulcer of the tonsils, and one of very unusual occurrence. I may mention here that she never had scarlatina or ulcerated sore-throat before. He approved in every way of my plan of treatment,

and could not suggest any alteration. He seemed inclined to take a more hopeful view of the case, and thought, as the sloughs were separating, she might recover. He satisfied himself that there was no pulmonary disease, and that the fever was due to blood-poisoning from the absorption of gangrenous pus.

3rd.—My poor little patient evidently worse, despite the most persevering efforts of all remedial means to benefit her; again applied the caustic to the throat; she was quite deaf to-day; no desire for food; still so cheerful; and wrote several letters, and said she was sure she would recover.

4th.—All the symptoms much worse; delirious all night; great restlessness; pulse most rapid; cold, clammy perspiration; gangrenous odour much worse, despite a perfume douch that was continually used in her room.

5th.—My little patient gradually sinking; spoke to me so cheerfully; cannot swallow anything except ice. She expired at 4 a.m.

Remarks.—This was also an exceptional case in my practice, apart as it was from the complication of scarlatina or diphtheria, reminding one of the cynanche maligna of Cullen, occurring as a separate disease. The time had elapsed for any benefit to be expected from treatment when I saw the case, as the blood-poisoning was too general to be removed by any remedial means, particularly in so weak a constitution. Could the fall have had anything to do with the development of this fatal attack? The nostrils were inflamed, and secreted a thin ichorous mucus; but there was no injury to the nasal bones or cartilage, or any tangible sign of any disease resulting from the accident. When I saw the patient in October the disease was evidently commencing—from the peculiar granular appearance in the part—but this I have often seen without any malignant sequelæ. At this stage would excision of the tonsils have warded off the supervening disease? or when the sloughing took place, should this operation have been performed? Was this a local affection at first, or was it merely a symptom of some malignant disease in the system that showed itself only in this locality? It was a strange result to follow from *ordinary* tonsillitic disease, as we frequently see deep corroding ulcers, abscesses, and diphtheric patches there, and no gangrene ensuing. This young lady had never had scarlatina, measles, hooping-cough, or, in fact, any disease, until the gastric fever in the June previous; was living in a most beautiful and healthy locality; was well nourished, and had all the comforts of life around her; was not

exposed to any contagious influence or mephitic vapour, &c. How then could this terrible and unusual malady have been generated, and was there any plan of treatment that could have averted the sad issue of the case, if adopted at an earlier period? My own idea is that if some powerful escharotic had been applied a month earlier, that the disease might have been removed, and the sloughing averted, save what accrued from the topical application.

Case IV.—*Chronic Tonsilitis—Ozena of the Nose—Recovery.*

The subject of this case was a lady, the wife of an officer in one of the regiments of the Dragoon Guards, and I first saw her in October, 1865. She was then stopping at an hotel, and was labouring under a severe attack of pleuro-pneumonia, contracted by exposure to cold—sitting between a door and open window, a few nights previous to my seeing her. She had always been healthy, was a native of London, married about two years, had no family; her general health in every way good previous to this attack. By the usual treatment she recovered perfectly from this attack, and I did not see her again until January, 1866, when I attended her for some slight attack of catarrh. She had removed to a house in the north suburbs, to be near the barracks in which her husband's regiment was stationed. My next attendance upon her was in February, as she had a severe fall, being thrown out of their phaeton, at Howth, whilst going down a hill. She received a good many abrasions about the face, and there was slight concussion of the brain. By care all danger passed away, and I did not see her again until April, when she had an ordinary attack of tonsillitis; the only remarkable incident connected with the attack being the difficulty of healing the superficial abrasions over each tonsil. My next attendance upon her was in August, when she had a very severe attack of cholera. Her convalescence from this attack was very slow, and about that time her throat got very sore again; but no ulcer visible; simple congestion all over the palate; uvula, velum, pharnyx, accompanied with dysphagia. There was no cough, hoarseness, or laryngeal irritation, and scarcely any constitutional disturbance. It may be as well to state here, that there was no evidence, in any way, of any syphilitic taint. She denied all knowledge of such, nor was their any light thrown upon this supposition by examining her with the speculum, which I did carefully; but the uterus was healthy. The treatment I adopted to relieve her did not effect a complete immunity from the attack, so

she went over to London for change of air, hoping to get free from all symptoms of delicacy by the trip. I did not see her again until the first week in November, when she called on me during my "at home" hours, in great distress with her throat. It appeared that during her stay in London the disease became much worse, and the pain in swallowing more severe, so much so that she sent for Dr. West, under whose care she remained for some days. His treatment was principally topical remedies. On examining her throat it was of a deep red colour every place, and two ulcerated patches in the fold of each tonsil; the voice nasal; slight deafness; great dysphagia; general irritability of the entire system. My treatment was both topical and constitutional, the former consisted of the application of dilute nitric acid to the ulcers, gargles of potassæ chloratis, counter-irritants, &c.; and the general treatment, the administration of syrup of bark with minute doses of the oxy-muriate of mercury, full diet, wine, &c. She also inhaled various medicaments, but very little benefit accrued. I now had Dr. Stokes to see her, who considered the case as one resulting from some debility of constitution, either scrofulous or syphilitic. He could not suggest any remedy save change of air, and advised her removal to Rathmines. She was soon located there in one of the very best situations, but up to the first week in December there was no improvement in the throat, but, on the contrary, the pain and irritability began to increase. About the 7th a speck of a dark colour was visible on the palate, and on passing a probe into it, evidence of perforation was plainly discernible, and the discharge from the posterior nares was very fetid. I touched the spot with dilute nitric acid, and on the 8th, as no improvement was visible, I had Dr. Smyly to see her with me. He examined her most carefully, and also used the laryngoscope, and came to the conclusion that it was either a scrofulous or syphilitic ozena. In addition to the means I was adopting he suggested that the ulcerated spot on the palate should be brushed with the butter of antimony, to have the spray of a lotion made with one grain of corrosive sublimate to an ounce of water, administered by means of the pulverizer, daily, to the throat, and to have large doses of quinine, &c. Up to the 23rd this treatment was carefully carried out, but no amendment followed. The perforations in the palate had increased, and all the local symptoms of irritation had become worse. About this time the regiment that her husband was in, was ordered to the West of Ireland, and as he could not get permission to come up to town for the Christmas, she determined to join him, and despite all my remonstrances to the

contrary, she left Dublin on Christmas Eve for a sea-port town in the West. I heard no more of my patient until the end of January of the present year, when she called on me, and announced herself as being perfectly well, and that she was cured by an apothecary in the country, with sarsaparilla! On inquiry, she said, that for the few days following her departure from the city, the throat had become much worse, and the slough in the palate increased rapidly; that the proprietor of the hotel in which she stopped, had recommended her to see the Doctor who attended the house, which she did; that on his visiting her, he first gave her some draught which he said *was to draw the matter out*; that he told her to use nothing but warm water as a gargle, and gave her large quantities of sarsaparilla to drink; and that in about three weeks she was quite well. On looking into her throat, there was a depression in the palate where the ulcer had existed, but it was quite healed, and a silvery-looking cicatrix covering it, the voice was slightly nasal, and the throat still congested; but the bulk of all her annoyance was removed, and she appeared to be in renewed health and spirits.

Remarks.—The most remarkable feature in this case was the obstinate nature of the attack, and its indisposition to get well, despite the most active and varied treatment adopted for its removal. It was, in my opinion, more a chronic ulcer, occurring in conjunction with tonsillitis, than a case of ozena, as in the latter disease also there is some permanent injury to the nasal cavities, particularly if any syphilitic taint is present. In ordinary cases of ozena in girls of a scrofulous diathesis it is mostly the anterior nares that are congested and thickened, with large quantities of thick glutinous matter; with impaired sense of smell; but in this case the olfactory function was more than ordinary acute, and the anterior nares were very little congested. The idea of some latent syphilitic attack suggested itself to each of the medical men that saw the case, but there was no tangible sign of its existence, either cutaneous or uterine, and still the vaunted cure by sarsaparilla would again obtrude the idea before the mind of such having existed. We could not attribute the remarkable and almost sudden recovery to the effect of sarsaparilla, and if any mercurial preparation was given with it, such had failed before, in conjunction with the syrup of bark, to afford any relief. The benefit was owing, no doubt, to the change of air, and to the ulcer in the throat having reached its acme; but the patient is rather sceptical on these points, and attributes her recovery solely to the sarsaparilla.

Art. VIII.—*On the Use of Iodide of Lead in Cutaneous Diseases. Cases with Observations.* By T. W. Belcher, M.A., M.D., Dubl., &c.; Fellow, Censor, and Examiner in Materia Medica and Medical Jurisprudence in the College of Physicians; and Physician to the Dublin Dispensary for Diseases of the Skin.

In the number of this Journal for August, 1848, Vol. vi., pp. 29, &c., the late Dr. Neligan, in his well-known Essay on Eruptive Diseases of the Scalp, introduced, to the profession in Ireland at least, the use of iodide of lead in the local treatment of porrigo. His claim to originality in this respect was subsequently denied by a reviewer in the *British Foreign and Medico-Chirurgical Review* for April, 1849; and this denial led to subsequent re-affirmation by Dr. Neligan of his claim above mentioned in Vol. viii. of this Journal; where on page 164 the reader will find all he had to say on the subject.

I have lately had under my care several private cases, in which I have used iodide of lead externally with great advantage; and as neither in the last edition of *Pereira's Materia Medica*, nor in the exhaustive *Traité de Therapeutique et de Matière Médicale*, by Trousseau and Pidoux; nor even in Professor Macnamara's last edition of *Dr. Neligan's Materia Medica* is much to be found about this medicine, which has been more or less in use for thirty-six years, it may perhaps be useful to give an abstract of a few cases in which it was used externally.

Case I.—In April last Dr. Owens, of Kildare-street, asked me to see with him a patient of his, a gentleman advanced in life, who had long been tormented with what proved on inspection to be chronic eczema. The disease was apparent on various parts of the body, but particularly on the legs and thighs; the itching was intense, and many preparations had been tried with little benefit. At first I suggested that an ointment of subacetate of lead containing glycerine and chloroform should be applied to the disease; and I had great hopes that this would produce immediate relief, as I had known it to do in other cases which I had treated shortly before that date. However it produced little, if any, relief in this case; and accordingly, on my suggestion, Dr. Owens agreed to try the iodide of lead, which was applied in the form of ointment, twelve grains to the ounce, with one drachm of glycerine, and forty minims of

chloroform. This procured immediate relief from the intense and aggravated itching; and the patient, having the advantage of frequent supervision from Dr. Owens, gave the remedy fair play, so that shortly after, on my seeing him again in consultation, I was agreeably surprised at the result. The disease had in great part disappeared; we agreed to continue the treatment, adding to the ointment as much chloroform as the preparation would take up. A few days ago I was gratified to learn, from Dr. Owens, that the patient was quite well.

Of course he took constitutional remedies as well as using local ones. It is doubtful whether in this case the iodide of lead, *per se*, would have cured the disease; chloroform certainly would not; but the conjoined use of the two was most beneficial; and I have no hesitation in recommending a preparation, such as I have above described, to the more general use of my professional brethren.

Case II.—I was called in to see a young lady who was subject to erythematous eruptions on the face, amounting frequently to erysipelas. At this time the attack was of the latter nature; the face was red and swollen; not painful and itching. Besides giving a purgative, I ordered an ointment of about the same strength as that above mentioned. Its good effect was almost immediate. In two or three days I saw her without a trace of the affection for which I had first visited her. This was always before that time constant to a greater or less degree; and had been more or less benefited by various local and constitutional medicines; but now it wholly disappeared, and has not since returned, so far as I know.

Case III.—A young gentleman, an under graduate of one of the colleges in Oxford, of excellent general health, given to open-air sports, and without any evidence of personal or hereditary syphilitic taint, consulted me a few months since for psoriasis, which he had on most parts of his body, save his face. I directed him to take Neligan's iodurettted solution of the iodide of potassium and arsenic, described on page 268 of my edition of his work on Diseases of the Skin; and to use locally Hebra's tincture, which I have described on page 114 of the same work, and also in a paper in the number of this Journal for May, 1865. He was further directed to take vapour and tepid baths, and physical exercise. I have seen him several times since his first visit; and always with the evidences of marked improvement in his case. At length I stopped Hebra's

tincture, and a similar preparation of rectified spirit, soft soap, oil of cade, and oil of lavender, which for a short time previously I had substituted for the former; and prescribed for him instead of them the following ointment:—"Iodide of lead, twenty grains; simple ointment, seven drachms; glycerine, one drachm."

He was directed to continue the constitutional treatment as before. In about a fortnight I perceived the disease to be greatly improved; in fact the psoriasis may be said to have disappeared, so far as external appearance went; and the skin had quite regained, in most places, its natural colour and texture. I know the amelioration must be largely due to the use of the constitutional means above noted; but in no case treated throughout as this was at the outset (see above) have I seen the same speedy repair of the skin and its function as was so very remarkable in this instance.

I might mention several other private cases in which I tried it with quite as much benefit as in the above, but they would inconveniently extend the length of these observations. The ointment of the iodide of lead of the present *Pharmacopœia* (1867) I conceive to be very much too strong for such cases as I have above noticed. It contains sixty-two grains to the ounce; whereas from a fifth to a fourth of that quantity is quite sufficient, and more useful than the pharmacopœial strength. In the cases of porrigo, in which Dr. Neligan first used it, he put thirty grains to the ounce; and therefore we read with little surprise that in some cases "the iodide of lead ointment excites a certain degree of inflammation." No such result follows the use of the weaker preparation; but the stronger is nevertheless useful in other conditions of the skin than those I have described.

Art. IX.—*Report on the recent Epidemic of a new Disease variously entitled Cerebro-spinal Arachnitis, Black Death or Black Typhus, or Malignant Purpuric Fever.* Transmitted to the Director-General Army Medical Department. By Surgeon J. C. Haverty, 52nd Light Infantry; Licentiate Royal College of Surgeons and King and Queen's College of Physicians, Ireland.

The materials wherewith to draw up a report upon this new disease, or association of diseases, for which a strictly appropriate title would hardly as yet appear to have been found, are, as regards

individual regiments, extremely scanty; and from the very limited experience afforded even by the collective history of the outbreak so far as it has gone, it would seem quite premature to adopt any definite theories or conclusions upon so important a subject.

Though very generally written and spoken of as an epidemic, the disease has been unaccompanied by the widespread dissemination and destruction to life usually held to be characteristic of epidemics of severe disease—cholera, for example—with which it appears to have many features in common. As with the literature of cholera, too, the new affection, if it only last long enough, seems likely to furnish a productive field for speculation and confliction of opinion regarding its origin, its essential physiological and pathological conditions, its mode of propagation, &c., &c.

In the recent discussion of the subject at the King and Queen's College of Physicians of Ireland, much diversity of opinion on these points was expressed; the weight of authority, however, was decidedly in favour of the theory of blood-poisoning as the starting-point of the disease, and of its being, in all probability, contagious. Nevertheless it will, perhaps, be pretty generally admitted that the evidence in favour of either view, but especially the latter, needs considerable strengthening from further experience, should we be unfortunate enough to be provided with it; for the as yet isolated or sporadic character of the cases, especially those occurring in regiments, can hardly be said to support them.

The rapid rate of accumulation and propagation of the "Materies Morbi" of contagious diseases, so generally recognized, and of which cholera (whether or not it be held to be contagious) furnishes such frequent examples, must be subject to some strangely exceptional laws under the sporadic condition, when, aided by all the favouring circumstances of well-filled, badly-constructed and ill-ventilated barrack rooms and hospital wards, an intensely virulent disease fails to present a single instance of contagious influence. Of the six cases which lately occurred in the 52nd and 48th Regiments in Richmond Barracks, there is, in my mind, no ground whatever whereon to set up the existence of any contagious element. Two of my own four cases occurred in one company of the regiment, and came from the same barrack room, but any interpretation of that circumstance in the line of contagion is met by the objection that its operation, if of any weight, must have extended further; and by the fact that all the cases were treated, without any attempt at isolation, on the same floor of a small wretchedly constructed

hospital, admitting of no isolation of special cases. The only survivor remains, after more than two months from the date of attack, still so imperfectly convalescent as to be able barely to walk across the ward. He has passed through all the stages of the disease, surrounded by the usual run of hospital patients, without any bad consequences to any of them. The same remark applies to the three more virulent cases of the disease, all of them fatal, which were previously treated; and to those treated in the adjoining hospital of the 48th Regiment, in which the same defective construction and arrangement exist.

The numerous class of diseases in which the mysterious and subtle actions of infection and contagion, although in their intimate nature and mode of operation all but a sealed book to observers, are, nevertheless, fully and generally admitted, and in which their destructive agency is recognized, are accompanied, for the most part, by certain inexplicable but familiar conditions, to which, for want of a better, the term septic might perhaps be applied. A few of the more aggravated cases of the "new disease" are described as having exhibited marked disorganization of structure at a very early stage, and to an intense degree immediately after death, but the cases which came under my own notice presented no such well-marked peculiarity; and the young soldier of my regiment now recovering was frequently remarked by myself and professional friends who saw him at various stages to have about him none of the peculiar features of contagious disease. His aspect and all his symptoms, from the commencement to the present time, were those of organic disease, presiding as it were, and after the first few hours expressing itself in comparatively light functional derangement. The purpuric eruption, which showed itself rapidly under the influence of what I cannot help regarding as an organic cause, disappeared as rapidly as the constitutional shock from this organic cause ceased, and was succeeded by steady and persistent reaction. The theory of a blood-poison appears to be in no way irreconcilable with an organic affection of the cerebro-spinal membranes as its first result, nor with absence of contagion; but it seems to me quite as rational to attribute the "first cause" of the disease to the strange and exceptional atmospheric conditions which so long prevailed in the early months of the year.

A marked tendency to asthenia in other affections, even in the mildest forms of disease, was generally observed during those months, and was very apparent in a great many of the men under

my own treatment. This fact would, perhaps, in relation to the etiology of the disease, add little or no weight either to the blood-poison and functional theories of the disease, or the atmospheric and organic views here advocated, but might certainly be expected to favour propagation by contagion were such an element in operation.

Whether the cerebro-spinal affection be taken as the essential expression of the disease, or be looked upon in the light of a complication only, it is that which evidently gives most character to the disease all through, and which drags its slow process of repair over a period of many weeks, perhaps months, attended with little or no functional derangement of any kind, but with intense debility.

An abstract of cases read at a meeting of the Medical Society of the College of Physicians of Ireland, is hereto appended.[a] The last in the list was the only man who recovered, and he is still so weakly that it seems more than probable another month or two will pass over before he is in a fit state for duty. The worst cases of cholera in the enervating climate of India never had so protracted a stage of convalescence as his.

Since the date (22nd May) to which period the history of the case then reached, the man, with occasional exceptions, made slow but steady progress towards complete recovery; the rigors, more or less prolonged, gradually gave place to a simple sensation of general coldness of surface, which returned daily for a week or ten days, and gradually ceased altogether. There was during that time, also at intervals, very severe pain, either of head or limbs, and unequal dilatation of pupils. A most marked disposition to drowsiness was also present, the lad being almost constantly asleep for several days. A little later, however, all those unfavourable symptoms disappeared, and no interruption to his convalescence occurred.

[a] See Transactions College of Physicians, p. 185.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. *Lectures on Mental Diseases.* By W. H. O. Sankey, M.D., Lond.; Lecturer on Mental Diseases, University College. London: John Churchill & Sons. 1866. 8vo. Pp. 281.

2. *The Insane in Private Dwellings.* By Arthur Mitchell, A.M., M.D.; Deputy Commissioner in Lunacy for Scotland. Edinburgh: Edmonston & Douglas. 1864. 8vo. Pp. 97.

3. *A Treatise on Emotional Disorders of the Sympathetic System of Nerves.* By William Murray, M.D. London: John Churchill & Sons. 1866. Pp. 118.

4. *Medicine and Psychology. The Annual Address to the Hunterian Society for* 1866. By Denis De Berdt Hovell, F.R.C.S.E. London: Bell & Daldy. 1866. Pp. 88.

5. *A Practical Treatise on Apoplexy, with an Essay on* (so-called) *Nervous Apoplexy, on Congestion of the Brain, and Serous Effusion.* By William Boyd Mushet, M.B., London. London: John Churchill & Sons. 1866. 8vo. Pp. 194.

6. *Observations on the Pathology of Some of the Diseases of the Nervous System.* By Samuel Wilks, M.D. Guy's Hospital Reports, Third Series, Vol. XII.

7. *Remarks on Some of the Functional Diseases of the Nervous System.* By Samuel Wilks, M.D. Guy's Hospital Reports, Third Series, Vol. XII.

In the Faculty of Medicine, in University College, London, a course of lectures on mental diseases has been introduced, and Dr. Sankey appointed to the chair; it also appears that arrangements have been made whereby the class have the opportunity of seeing the insane in asylums. In Edinburgh and in this city, physicians

specially conversant with mental diseases have formed classes for their study both systematically and clinically; but we do think the boards of our licensing bodies and our schools have failed to recognize the importance of a knowledge on the part of practitioners generally of this branch of medicine. This has partly arisen, we believe, from a growing disposition to exclude specialities from the general curriculum of the student; nothing, in our opinion, could be more ill-judged. We are convinced that the science and art of medicine are largely indebted for their recent advances to the arrangement in accordance with which men select some special department for their particular study. The slighter shades of difference between the various members of each group of diseases are most likely to be appreciated by those who have frequent opportunities of comparing one with the other. The greatest perfection of detail in treatment is, other things equal, most likely to be attained by him who has his powers of invention most frequently stimulated by the emergencies of actual practice. At the same time the arrangement has its disadvantages. Our nosological divisions are but artificial. As in botany so in medicine, true analogies are often found where, at first sight, there is little resemblance to be discovered. The comparison of diseases which, unlike in some respects, in others resemble one another, is often suggestive of missing links in our pathology. Above all, must we remember that the mental process which occurs when the physician stands at the bedside, essentially consists in tracing the likeness of the case before him to others with whose progress and management previous experience has made him familiar, that he may anticipate its course, and direct its treatment. In obscure cases we are obliged to admit the frequency or the rarity of an affection as an element in the formation of our diagnosis—and every one knows how much more disposed we are to look to our own individual than to general experience in forming our estimate. The specialist, therefore, sometimes imagines he sees the malady with which he is most conversant where it is not present; and still more likely is the existence of a disease to be overlooked by one who has never seen it. We cannot, therefore, too strongly condemn the omission of any department of medicine from the curriculum of the student. Virtually, this has been done with regard to insanity, and, we are convinced, with a very prejudicial effect. The physician in ordinary practice, if familiar with the causes which develop it, and with the early indications of its approach, may prevent the supervention of a condition which

all the skill and appliances of the specialist may be powerless to remove. The public, moreover, form their opinion of our knowledge of matters, of which they admit themselves incompetent to judge, by the sagacity we show in dealing with those with which, in some degree, they are themselves acquainted; this they have become in regard to many of the aspects of mental disease—the ever-recurring questions of human responsibility, the management of criminals, the formation of character, introduce psychology into the studies, not only of the divine and the law-giver, but of every man of liberal education. Metaphysics were found so barren and useless that their study was little pursued outside the universities; but a system of mental science has now arisen, built up by induction, and giving promise of applicability to the solution of social problems. This has been studied, and will be still more, by thoughtful men in every walk of life. It alone will never make them competent opinions on insanity, which has its corporeal as well as its psychical phenomena; but it will prevent them accepting, because propounded by a medical man, explanations the insufficiency of which their own knowledge of one side of the subject may show them. A practitioner who had seen nothing of the actual practice of obstetrics, would surely hesitate to decide on operative interference with labour on the strength of knowledge derived from books, and yet he is expected, because he possesses a licence as a physician or surgeon, to pronounce authoritatively on a question as grave and difficult, without having had the previous training which alone could fit him to do so. For all these reasons we hope to see the study of mental diseases become a regular part of medical education; and of all the works we have read, we consider Dr. Sankey's lectures give most clearly, and in small compass, an exposition of our knowledge regarding them. Certainly no physician who has devoted himself to their treatment should be without this book.

General paresis, or the general paralysis of the insane, as it is commonly called, the author considers a distinct disease; but he regards all the other varieties of insanity, which have been described as merely phases or stages of one malady—emotional disturbance: some degree of depression or melancholy is, in his opinion, invariably the first symptom, to which may succeed violence, and when the case becomes chronic, delusion; intellectual perversion then becomes more prominent, and sometimes maniacal and melancholic symptoms alternate; while, in every case of long standing, dementia or imbecility at last succeeds. In secondary attacks, however, and

even in primary attacks in the aged, the stage of depression may be absent. Recurrent insanity, so important in its legal bearings, Dr Sankey discusses at length, and points out how that consciousness of having been insane, which is characteristic of genuine recovery, is usually wanting during the lucid intervals; showing that in reality there has never been complete sanity. The connexion of epilepsy and insanity is considered, as is also with great fulness, general paresis—into the morbid anatomy of which the author has made many original investigations. His view of the pathology of insanity is probably as satisfactory as in the present state of our knowledge it could be. From certain derangements in the processes of assimilation the blood may be altered in quality; but in many cases the early phenomena seem rather to indicate alteration in the quantity circulating through the brain. This will lead to molecular change, as may also the frequent repetition of impressions of a depressing character arising from the surroundings of the patient. There is a common idea that our advancing civilization favours the production of insanity, but the author's inquiries lead him to the opposite conclusion—that the wealthier and more educated classes seem decidedly less liable to it than their humbler neighbours; hereditary tendency he recognizes as a predisposing cause; while the chief exciting causes, whether physical or moral, are all of a depressing nature. He gives a detailed account of the various appearances which he has found after death; in acute cases, the most marked conditions were injection of the membranes and of the brain itself; increase in the specific gravity both of the grey and white substance, and increased weight of the cerebellum, as compared with the cerebrum. In chronic cases the specific gravity was found lower than in health, and the layers of grey matter unusually distinct; while in dementia there appeared to be an anemic condition of brain. In some cases, too, no changes appreciable by our present means of investigation were to be discovered. In the treatment of insanity, Dr. Sankey is strongly opposed to depressing remedies; he particularly condemns the attempt to allay paroxysms of mania by tartar emetic or digitalis; opium he only uses as a last resource in certain cases of long-continued want of sleep. The first indication, as he points out, is to rest the brain; and, as a general rule, this can be fulfilled in an asylum infinitely better than at home. He explains at length the old and the new systems of treatment, in both that of restraint and that of non-restraint, as put in practice in the present day: the object is to

produce a mental effect; but the first aims at doing so by intimidation; the second, by conciliation, and by creating pleasurable feelings in the mind of the patient. In the eleventh and twelfth chapters he explains, with clearness and minuteness, the details of asylum management. We recommend their careful perusal to all who have to do with the insane. In the thirteenth lecture, he gives some account of the legal relations of lunatics, and the formalities required in signing certificates regarding them; he then proceeds to show that the various tests of insanity which have been proposed have all broken down; and he explains the way in which we should proceed in the investigation of a case in which our opinion as to the mental state is required. He says:—

"Under the difficulties which have accumulated around the subject, from the separate considerations of it from different points of view by the lawyer, the metaphysician, the physiologist, &c., I should advise you to address your examinations simply to the question whether there is disease present or not. I conceive that the presence of actual disease would exonerate a person from responsibility of acts resulting from the disease. As a broken leg will exonerate a soldier from marching, a mental disease surely ought to exonerate a man from all mental acts.

"As I have already said, the question is the same whether your opinion is sought from one motive or another; those who ask your opinion will doubtless give you sufficient reason why you should undertake the investigation; they will relate to you some act, some alteration in conduct, behaviour, dress, &c.; you will therefore be furnished with some starting point. They will present you with presumptive evidence of insanity. In undertaking an examination the first thing necessary will be that you should have the patient before you. I would advise you not to give an opinion on any case merely related by another, for, in the first place, the facts may be disputed, or may be incorrectly stated, even though they are not disputed. A medical man does not examine his patient on oath; it is necessary, therefore, to appeal to physical signs of disease, which cannot falsify, as well as to what are called the rational signs, or what is related by the patient; you must observe the patient's expression of countenance, his manner and bearing, and also question him yourself, to ascertain the reality of his mental peculiarity and discover any signs of impaired mobility. You must not trust to another for evidence on these points, for the medical man's senses have to be trained for a proper appreciation of the symptoms of disease.

"Now, we will suppose a patient is submitted to you who may be feigning insanity, and let the case be one in which the person pretends to have delusions. You would trace the symptoms back to their origin. A

delusion is a symptom connected with advanced mental disease. The following are the chief facts you would investigate.

"Are there febrile symptoms present? If so, either the case is removed from the class of mental disease; or, the patient is insane, and labouring under some intercurrent disease, which causes the febrile disturbance, the nature of which you would determine.

"But the patient has no febrile symptoms. Is the present a primary attack? If so, what are the symptoms which preceded? Have there been melancholic or maniacal symptoms? If both, which came on first? If it is pretended the maniacal preceded the melancholic in a primary attack, either the patient is feigning or it is not a simple case of insanity. But if the melancholic preceded the maniacal, what were the symptoms of the melancholy? Examine for morbid apprehensions, for illusions of the senses. If these be duly described, and in the proper order of sequence, there would be strong evidence of the existence of mental disease.

"But the patient has had a previous attack. If so, what was the nature of the first attack? If there was no melancholic stage, grave doubts would exist (unless the patient was epileptic). But if the first attack was melancholic, trace its progress, and ascertain if the patient admits having been insane. A distinct previous attack, with evidence of all the stages, viz., melancholy, morbid apprehensions, illusions, maniacal outbreaks, and recovery, would go far to prove the reality of the second attack, though it began by sudden maniacal outbreak with the recurrence of maniacal violence after a few days' indisposition; and the evidence would be more complete if on recovery the patient denied the insanity. The case would answer to the diagnosis of recurrent mania.

"Or, say the case commenced without depression, and is a first case. It is possible that it is one of general paresis; and, if so, there will be, probably, evidence of squandering of money, of stripping or indecent exposure, of petty unconcealed thefts, and in a few days unequivocal maniacal raving, with restless movement and general delirium. I do not give the above as a complete analysis, but as a specimen of the mode by which you could analyse the case presented to you. Remember that all diseases necessarily go through certain stages; their progress is a known and well-observed fact; the sequence and order of the symptoms are also simple matters of observation. The order of the morbid process is a necessary phenomenon. We may not always understand why one set of symptoms succeeds another in every case, but doubtless there is a necessary sequence of one to the other in all. We may not clearly understand why the secondary symptoms of syphilis succeed the primary. Nor, perhaps, why pericarditis should follow and not precede articular rheumatism. One phenomenon, we know, is connected with the other, though we do not perceive the connecting links. There may be a time when the reason of the sequence will be evident. In cases of eruptions on the skin

of doubtful syphilitic character our diagnosis would be assisted by a clear history of the pre-existence of primary symptoms, and the diagnosis would be rendered all the more clear by the presence of other symptoms, as sore throat, &c.; but it would be a necessary part of the evidence that the events followed each other in a given order or sequence. And one or two patches of suspicious character on the skin will not prove that the patient has a syphilitic disease unless the evidence goes also to show that they succeeded the primary sore. If they had existed decidedly before the primary sore occurred the diagnosis would not be assisted. Again, an isolated symptom in any other disease is not considered sufficient for the diagnosis. Dyspnœa will not prove that pneumonia exists, nor will dyspnœa and cough, nor dyspnœa, cough and pain, nor these with general dulness on percussion. There are many conditions of the viscera of the chest which may be accompanied by these symptoms, and to separate one from another you would not only be able to establish the presence of all the phenomena peculiar to each affection, but you would also investigate the duration and sequence of each and the relation of one to the other.

"The diagnosis of insanity is to be made precisely by the same means—by precisely the same mode of procedure.

"One isolated insane act is not enough to prove the existence of insanity. There are acts which would raise the presumption, as rusty sputa would raise a strong presumption of the presence of pneumonia; but many sources of error surround every isolated fact; there is scarcely an irrational act which may not be under varied circumstances a rational act, and therefore every case for a medical opinion should be submitted to your own personal examination."

We recommend Dr. Mitchell's volume to the perusal of all who are officially connected with the care of the insane. His observations on the defects in the Scotch enactments regarding them are, of course, of interest principally to Scotch practitioners; but the main question raised is one of very great importance both to physicians who have devoted themselves to the treatment of mental disease, and to the public at large. At the present time, more particularly, does it deserve the consideration of the authorities. In Ireland, during the past five years, very large sums have been expended in providing additional hospitals for the insane; and seeing how great a number are, owing to want of room in these institutions, detained in our gaols and workhouses, it seems probable that unless some new mode of dealing with them be adopted, extensive additional asylum accommodation will be required, involving, as it must, heavy outlay at first, and continuous expense afterwards. Now, Dr. Mitchell, from his position as Deputy-Commissioner

for Lunacy in Scotland, has had opportunities for investigating very fully the conditions of the insane who live throughout the country in private dwellings, either with relations, or with families who are paid for taking charge of them. As was to be expected, demented persons so situated were, in many cases, improperly treated; sometimes from deficient knowledge and want of means; and sometimes from lack of conscientious feeling on the part of their guardians. But, on the other hand, as a result of these inquiries, Dr. Mitchell became convinced that many, both of the congenitally imbecile, and of those whose acquired insanity had become chronic, found in private dwellings a more suitable abode than within asylums. In Scotland, as elsewhere, asylum accommodation has been, of late years, found insufficient. Dr. Mitchell does not believe that a larger proportion of the population than in former times become insane. He seems to think that asylums have got overcrowded, because, while the number annually received has kept almost invariable, the annual deaths have, under the improved treatment, greatly diminished. We are not quite prepared to admit this explanation as sufficiently accounting for the crowded state of our asylums. But in any case the fact remains; and, as Dr. Mitchell forcibly points out, it is a very great evil; it causes delay in the admission of acute cases, which are thereby denied the benefit of treatment at the very time when there is most hope of its being successful; while the family of the sufferer, obliged to devote their time to caring him instead of attending to their work, are not unfrequently permanently pauperized by his illness. Dr. Mitchell proposes, therefore, to relieve the asylums by carefully selecting chronic and manageable cases and placing them with families of their own rank through the country; the saving to the public would be great. During five years the average daily cost of each pauper in an asylum was 1s. $3\frac{3}{4}$d., while in private dwellings it was only $5\frac{3}{4}$d. The experiment has been tried on a tolerably large scale in Scotland, and for centuries at the well-known Gheel settlement in Belgium, and in both cases with most encouraging results. The prolongation of life among the chronic and incurable cases was very great. The average annual mortality during four years being under 5 per cent. against a mortality exceeding 10 per cent. among similar cases in poorhouses. Dr. Sankey, in the work we have just noticed, insists on providing for the insane occupation and amusement suitable to the rank in life from which they have come, and intercourse with the sane; and nearly every one who has seen much of them will agree with Dr. Mitchell, when he says:—

"Many lunatics are quite capable of appreciating the amenities of domestic life, and of enjoying the individuality which they acquire in private houses, and which they cannot have while part of the population of a large asylum. Though their mental powers may be deficient, or their intelligence perverted, many of them still have 'warm affections, and are capable of deriving pleasure from social intercourse.'[a] To such patients the weary monotony of prolonged confinement is irksome, and injurious at least to their bodily health, if we may judge by the improved physical wellbeing and greater chance of living, which we know they acquire by removal to more natural or less artificial surroundings. But it is probably injurious also to their mental health, for it is a generally received opinion now that 'all great aggregations of permanently diseased minds is an evil which as much as possible should be avoided, as their tendency is undoubtedly to lower and degrade each constituent member of the mass.'[b] It is clear therefore that continued confinement may be an injury to many of those patients for whom the appliances of an asylum have ceased to be necessary, and that, under proper arrangements, their removal may become the source of increased comfort, happiness, and general wellbeing."

We must remember that the reason why home life is generally so unsuitable for those whose minds have become affected is, that there all the worries and anxieties which have contributed to develop the disease still fret and press them; home life freed from these vexations is a very different thing; and for such cases as those described by Dr. Mitchell, we are persuaded it would be infinitely more suitable than residence in an asylum. While, however, we do not doubt that physicians accustomed to the insane could easily select cases which would be benefited by residence in a comfortable home under a judicious guardian; we would anticipate great difficulty in finding (in such circumstances as to render it worth their while to board a pauper lunatic) many persons who had the strength of character to make them trustworthy custodians; yet the following account of the condition of the insane who have been placed in private dwellings at the cost of the city of Edinburgh, shows that such have been found, and we are sure its perusal will induce those who have a special concern in these matters carefully to examine the merits of such an arrangement:—

"Almost without exception the patients thus disposed of are found to

[a] Rep. Gen. Board of Lun. for Scot., ii. 43.
[b] *Op. cit.* ii., 41.

be contented and happy, and to exhibit an improvement in their physical health. They are treated as members of the family, occupy the same sitting-room, and eat at the same table. They are clothed as the villagers generally are, and most of them go regularly to church. They send and receive letters, and are visited by their friends, and occasionally by the clergymen of the locality, They have tea-parties and pic-nics. Their occupations are varied, and usually such as they have been accustomed to. Some are chiefly employed in ordinary household work, and others in knitting and sewing. One acts as nurse to her fellow-patient, who is old and infirm. Some of the men do field-work and look after cattle, and one was met returning from a neighbouring village to which he had been sent with butter and eggs. In short, their time is spent in occupations of a quiet and commonplace character, which are not, however, the less useful or proper on that account. Care has been taken to secure comfortable sleeping accommodation, and each patient has been provided with a separate bed. As a rule, the best room in the house has been made the sleeping-room, and it is generally snugly and fully furnished. In one or two cases, indeed, the bed-room is quite equal, as regards comfort, to what is furnished to better class asylum patients. The guardians are persons reputedly of good character, and without any such employment as would take them from home. The common remuneration is 5s. per week, body-clothing not included."

Dr. Murray maintains that emotions produce derangements of the viscera, and that derangements of the viscera cause distressing emotions; and that in both cases it is through the sympathetic system that the action takes place. Every practitioner is aware that the spirits are often intensely depressed by disease, especially by derangements of digestion, and of the reproductive organs in both sexes. Indeed, in this knowledge, a large portion of the public share; equally well known is it that a tranquil contented mind is, in the highest degree, favourable to the well-being of the entire system. These are the very conclusions to which Dr. Murray's observations have led him, and we do not think that he has made our knowledge much more precise as to the nature or management of the conditions he professes to describe.

We are informed, on the title page, that Medicine and Psychology was the address delivered at the Hunterian Society in 1866. The author speaks more than once of the necessity of medical men thinking more of curing their patients than of merely investigating disease; and inveighs against practitioners who treat hysterical

ladies as if they could get well if they would. These two ideas rise with some little distinctness out of the address; but with these exceptions, we have failed in discovering at what Mr. Hovell is aiming.

Dr. Mushet's book consists of two essays. "Part I. Apoplexy (Cerebral Hemorrhage)." "Part II. On (so-called) Nervous Apoplexy, on Congestion of the Brain, and Serous Effusion." The author's object being, as we are informed in the preface, "to extricate apoplexy, as a substantive disease, from an assemblage of symptoms—*i.e.*, from the multiform phases of coma." He tells us at the outset what he understands by apoplexy. "Apoplexy may be defined as a more or less sudden impairment of the functions of the brain and nervous system—of consciousness, motion, and sensation—from extravasation of blood into the substance, or upon or between the membranes of the brain, arising from internal causes."

Cerebral hemorrhage is, therefore, the subject of Dr. Mushet's first essay. He quotes the conflicting conclusions at which different physiologists have arrived regarding the cerebral circulation, and gives it as his own opinion that it varies both as to the relative distribution of the blood in the arteries, veins, and capillaries, and also as to the absolute amount within the cranium, but that these varieties, however produced, have, *per se*, little or no effect in inducing cerebral hemorrhage—atheromatous or calcareous degeneration of the walls of the blood vessels within the brain, he holds to be a condition without which extravasation never occurs, but which alone is not sufficient to produce it, as such degeneration exists in a very large number of aged persons, who yet do not become apoplectic; other conditions seem necessary, and these the author considers to be morbid states of the heart and kidneys; he gives eight unselected cases, in all of which, along with atheromatous degeneration of the vessels, hypertrophy, attenuation, or dilatation of the left ventricle existed, and in all of which there was likewise evidence of more or less renal disease; this connexion, he proceeds to prove, has been greatly overlooked. He gives a *résumé* of all the cases of cerebral hemorrhage contained in the works of Morgagni, Cheyne, Portal, Abercrombie, Bright, Andral, Copeman, and in the Pathological Transactions, he goes on to show how imperfect have been the views held on this subject, and quotes numerous authors who, in his opinion, have failed to state with precision the conditions necessary to cerebral hemorrhage.

From the statistics of the Registrar-General he shows how rare is apoplexy under forty-five, leading to the inference that cardiac disease, which is common before this period, is not sufficient to determine extravasation till the vessels become atheromatous. Then follows an account of the condition of the kidneys in eight aged persons whose bodies Dr. Mushet opened, and who had not died of apoplexy—the object being to show that the renal changes found in his eight apoplectics were greater than those usually met with at their age. A chapter on the diagnosis of cerebral hemorrhage follows, and then two on its treatment and prophylaxis, in both of which there is the same continual reference to the views of ancient and modern authors which we noticed in the first chapter. In his second essay the author maintains that, under the term of nervous apoplexy, have been grouped numerous diseases, the true nature of which greater accuracy in investigation would have revealed; that congestion of the brain takes place, and that in consequence pressure is exerted on its structure, he considers assumptions of which there is little proof. Serous apoplexy he considers in much the same light; in fact, these three—nervous apoplexy, vascular congestion, and serous effusion are, according to him, "the refuge of ignorance, and made available when the cause of death appears otherwise inexplicable." In this conclusion most well-informed physicians would, we think, agree with him; for, unfortunately, there can be little doubt that *post-mortem* examinations, whether in the interests of science or of justice, are often made in a very unsatisfactory manner; and congestion of the brain, or effusion into the ventricles, supposed to be present and to account for death, when in reality the fatal lesion is elsewhere; and an observer familiar with *post-mortem* appearances would pronounce the structures within the cranium normal. Such is a summary of Dr. Mushet's work. It is furnished neither with table of contents nor index; this is very unfair to those who may wish to consult it, and the omission has been, in our opinion, very unfortunate for the author. Had he read his essays carefully over, with the view of framing a table of contents, he would, we think, have seen that many of his ideas are conveyed in language which is anything but precise and distinct, and that his argument is not so arranged as to make it by any means easy to follow its thread. The number and character of his quotations show that he must have brought scholarship to the test, and bestowed a vast amount of labour on the literature of the subject, but we cannot help thinking that much of it was

labour thrown away. The co-existence of atheromatous change in the cerebral vessels with damaged kidneys and hypertrophy of the left ventricle, whether the lesions are but manifestations of a common vice, or one of them primary and the other two consequential, is a most interesting subject; but for its elucidation observations require to be made in a direction which had not been thought of when many of the cases he has so laboriously collected were recorded. The directions as to treatment are vague, and some of them, we think, unsound, as when he speaks of bleeding being "warrantable and serviceable when the coma is very profound" in aged persons with albuminous urine.

We recommend to the perusal of our readers the two papers by Dr. Wilks, which are contained in the last number of Guy's Hospital Reports. The second is a short one; but, nevertheless, contains some interesting observations on functional diseases of the nervous system. The first, however, is, in our opinion, a most valuable communication, worthy of the author's reputation as a pathologist; it is a record of facts which have been carefully observed, and are now arranged in such a manner as to give a connected and orderly view of cerebral lesions, at least as far as regards their site, and, to some extent, as regards their nature. Many of the conclusions to which Dr. Wilks' observations lead have already been pretty generally accepted by the profession, but he has verified them by independent research, and the paper forms a clear and admirable exposition of our knowledge as to the connexion between the phenomena of cerebral diseases and the part of the brain affected; for, as Dr. Wilks shows, it is rather the situation than the nature of the lesion which determines the symptoms; an extravasation or a softening will cause similar symptoms if they occupy a similar position. The author gives first a summary of the functions of the cerebro-spinal axis; he then takes up disease of the central ganglia, and shows how by it is produced hemiplegia, as the condition is usually called, though, strictly speaking, there is not a paralysis of half the body, inasmuch as the muscles of the head and chest remain under the control of the will, or, at most, present only a transient paralysis, due, in all probability, to some inhibitory action; the explanation of this fact—the exemption of the muscles of expression, deglutition, and respiration from the paralysis—is found in their possessing centres of power independent of the central ganglia. His observa-

tions on loss of speech in right hemiplegia possess much interest. He says:—

"With regard to the loss of speech in right hemiplegia, I need scarcely say that my observations accord entirely with those of Dr. Hughlings Jackson, although the true explanation of this remarkable circumstance has yet to be discovered. It cannot be believed that the organ of speech is originally situated on one side of the brain only, and thus the explanation must be sought in some secondary cause. My colleague Dr. Moxon has offered a very good theory, which probably has much truth in it; it is to the effect that of the two halves of which the body is made up, one is more especially educated, and that the other follows the movement by consent. This phenomenon, which appears so remarkable, is probably merely one instance of a general law of our bodies which has been hitherto overlooked; so far from being exceptional, I believe it to be only one example amongst numerous others, which shows how partial is the education of our muscles. In the case of writing the fact is so evident that we have never thought of its importance in reference to the physiology of the brain; as most persons write with their right hand, a hemiplegia on this side deprives them of the power to write, whereas a similar affection of the left side has no such effect. Now, when we consider that the mechanism by which writing is performed is entirely the product of education, and that the various movements are guided by nerves which are themselves under the influence of the brain, it becomes evident that one side of the brain only obtains the guiding power. Hence, were it possible for the halves of the brain to be changed over, so that the limb should retain its activity, the power to write would, I take it, still be wanting. It might, of course, be acquired, and thus our hemiplegic patients again learn to talk as they did in infancy. It is probable that for those operations in which we can use both sides of the body equally both sides of the brain have been educated alike; but since in many acts one side rather than the other has been put into use, it has followed that one half of the brain has been specially educated. As regards the movements of the limbs, this is self-evident, but it now seems to be equally true of the power of speech, and it may be true, likewise, of many other operations, as, for example, musical performances. So, again, with reference to the eye; I have heard of a man who was in the habit of using a theodolite with the right eye, and who could not employ the left for this purpose, although the sight was equally good.

"There seem to be different degrees of loss of speech. Thus, in some cases there is a mere inability to articulate, whilst the patient is able to write; in others a loss of memory of words until they are suggested; and in yet others a total forgetfulness of names, the patient giving everything a wrong appellation. It would be important to know

whether these different symptoms are associated with distinct lesions; at present it is thought that loss of speech is associated especially with some disease in that part of the brain known as the island of Reil; and yet, at the same time, it is said that the loss of speech is nearly always connected with a hemiplegia. It follows, therefore, that, unless disease in the spot just named is sufficient to produce a hemiplegia, there must be an affection of the centres, extending towards the external parts.

"In all the cases which I have myself seen, and, if I remember rightly, in those which have been recorded by others, there has been disease in the central ganglia, and I take it that this is necessary for the production of a hemiplegia. But the question remains, is it necessary that disease should advance beyond these parts in order to cause the loss of speech? According to the theory of the education of the one side to the disparagement of the other, a simple loss of power is all that would be required to produce this symptom; and if, as a matter of fact, loss of speech accompanies all right hemiplegia, then, assuredly, a small spot of disease in the central ganglia is sufficient. It may, indeed, be thought that a further extension of the mischief outwards to the grey matter of the hemispheres (especially in the region of the island of Reil) is essential to the further loss of all memory of words; and, on that supposition, we should be on the watch for cases in which this part is injured independently of the centres, and in which loss of speech would, perhaps, exist without any corresponding hemiplegia. Cases of loss of speech certainly occur without a paralysis of the limb, but I am not aware that they have been shown to be due to disease in the island of Reil. I have on more than one occasion seen loss of speech with right hemiplegia, where the lesion was confined to the centres, but in these cases I believe that the failure of speech proceeded no further than an inability to articulate. Aphonia may also occur from disease in the pons Varolii, and I have thought that, by noting accurately this symptom in cases of disease lower down in the motor tract, we might obtain a proof of the importance of the anterior lobe in the production of speech. For example, a lady had disease in the pons Varolii; her tongue and soft palate were paralysed, so that she could not utter a word, but she could write down accurately all her wants. On the other hand, I am now seeing a patient who has somewhat similar symptoms, denoting a disease of the pons, and who has loss of speech; but before this was complete, and when she spoke intelligibly enough to make herself understood by her husband, she called things by their wrong names. The cause was clearly not in the brain proper, for the temporary paralysis which she at first had was on the left side.

"If we believe that, for the production of a persistent hemiplegia, some part of the motor tract must be involved—if we find that in nearly all these cases of loss of speech with paralysis of the right side one of

the central ganglia is affected—and if we also adopt the theory that this peculiarity is due to the education of one side alone—these facts would imply simply that the muscles of the tongue and palate had never learned to act in a certain definite manner; but whether the memory of words being independent of the mechanism by which they are formed, requires another locality for its action, is very doubtful. This anatomical and physiological question merges into the old metaphysical one as to how far the idea must correspond with the outward sign. I apprehend that, according to Dr. Jackson's supposition, a disease of the left corpus striatum would necessitate a loss of the power of articulation, and, if it also involved the neighbouring cineritious structure, would likewise destroy the faculty of speech; while if the latter were the only function affected it would be surmised that the surface about the island of Reil was alone affected."

From symptoms Dr. Wilks believes it is not possible to say in which of the central ganglia, whether in the corpus striatum or in the optic thalamus the disease is situated. Not only, however, may disease, either in the one or the other, cause paralysis, but if, from its nature, it cause rather irritation than destruction of their tissue, hyperesthesia, or convulsion, may be produced; while, if it be of the character of a chronic atrophy, wasting and rigidity of the opposite arm and leg will follow.

He then proceeds to the *pons Varolii*:—

"*Cases of Disease of the pons Varolii.*—As regards this part of the brain, since the motor-sensory tract passes through it, a disease of one side of the pons Varolii must produce a hemiplegia, and a disease of its centre a total paralysis. I believe I have noticed that when disease has originated in this part there has been more impairment of the sense of feeling than in the form of hemiplegia already spoken of. If this be so it may be due simply to the greater concentration of the sensory fibres in this region. In disease of the pons there is not necessarily any loss of consciousness. Since numerous nerves arise from this part, the implication of these often affords evidence as to the part of the sensori-motor tract affected. In ordinary hemiplegia we have seen that there is merely a temporary inhibitory movement on the facial nerve centre; but in actual disease of the pons the nerve root may be involved, and thus, with the hemiplegia, there may be a decided facial paralysis on the same side. In such a case, according to Brown-Séquard, the upper part of the pons is affected. In other instances, however, paralysis of the face occurs on the side opposite to that of the limb, and he says that we may then infer that the lower part of the pons is the seat of disease; for it is believed

that the fibres of the seventh nerve decussate in the pons, and that in the cases last supposed the centre of the nerve of the same side would escape, but the disease would involve the fibres of the nerve of the opposite side. I cannot, from actual observation, say that the lesion has been higher in the one case than the other, but it is evident that it must have differed in position in the two cases. I should, however, say that for many years past we have, at Guy's Hospital, been in the habit of referring hemiplegia in which there is marked facial paralysis to lesions of the pons Varolii."

But hemiplegia, Dr. Wilks now believes, may be produced not only by disease of the centres but by disease of the surface of the brain, by a unilateral arachnitis, or by the disintegration of the grey matter of one hemisphere; when so produced it will be accompanied by those phenomena which characterize lesions of the cineritious surface of the brain; such cases almost invariably originate in injury, and formerly the author was in the habit of attributing the paralysis to extension of the disease to the central parts; but some cases published in the *Medical Times and Gazette* by Mr. Jonathan Hutchinson have convinced him this was not necessary for the production of hemiplegia. He then alludes to this symptom following injury of the head as an immediate result of the effusion of blood on the surface. So far as his experience goes, "a partial hemiplegia occurring soon after an injury always points to a clot on the opposite side;" but some days or weeks after an injury it may come on, and practically it is of the utmost importance to distinguish the two cases; in the first there is a clot of blood, which may be removed after the trephine has been applied; in the second the paralysis, according to Dr. Wilks' experience, is due to arachnitis or to disease of central parts, and operative interference useless; hemiplegia, coming on after some days, might indeed arise from secondary hemorrhage, but this is an occurrence so exceptional as hardly to be calculated on.

The author's observations on disease of the cineritious substance of the brain are also of much interest; intellectual disturbance and convulsion are, as is well known, the characteristic signs produced by acute changes in it; but other phenomena may arise, and their mode of development is considered at length. Chronic diseases of the grey matter appears generally to end in its atrophy, or if not in its positive shrinking, at least in the substitution for true nervous matter of a tissue which no longer serves the purpose which it should, differing in their causation—sometimes due to injury, sometimes to the long continued operation of mental worry, some-

times to old age or to excesses—differing, no doubt, also in their early stages as to their intimate nature, these chronic lesions seem almost invariably to end in wasting, and to have as their characteristic symptom a gradual failure of mental and bodily power. The author's observations on the general paralysis of the insane will well repay careful perusal by all who have to deal with that malady. He agrees with Dr. Sankey that it differs essentially from the other forms of insanity. He says:—

"There are, however, many reasons for drawing a line between this and other mental affections. Thus, it sometimes arises from a definite cause, such as an injury, in a person not predisposed to insanity; it runs a certain course of not many years' duration, and it may attack a brain previously sound. On the other hand, purely mental diseases are generally dynamic or functional; they depend upon some natural and inherent failing, and they show themselves by peculiarities of manner, habits, and feelings. We therefore must not infer, from the supposed analogy between general paralysis and the various forms of insanity, that they also arise from a structural alteration similar to that which exists in this disease."

Several instructive pages are devoted to the consideration of epilepsy. Fits, having nearly all the character of epilepsy, have, in Dr. Wilks' experience, been almost invariably associated with disease of the surface of the brain. Such cases differ from those which are usually regarded as genuine epilepsy, in the loss of consciousness not being complete, in the convulsions succeeding one another rapidly, and in being accompanied not merely by a transient but by a permanent hemiplegic condition. They are found to be due to disease of the surface of one hemisphere. The seat of genuine epilepsy, then, the author infers to be the surface of the brain; in it, however, the grey matter of both hemispheres is probably affected. In connexion with this he claims, and no doubt with justice, the merit of bringing before the profession the efficacy of the bromide of potassium as a remedy against this intractable malady.

Dr. Wilks, in his second paper, makes some excellent reflections on hysteria and on that form of hypochondriasis which is associated with a morbid affection to the sexual organs.

The Physiology of Man. By AUSTIN FLINT, Junior, M.D.; Professor of Physiology and Microscopy in the Bellevue Hospital, Medical College, New York, and in the Long Island College Hospital; Fellow of the New York Academy of Medicine; Microscopist to Bellevue Hospital. New York: D. Appleton and Company, 443-445, Broadway. 1866.

THE author of this work before us is not unknown to the profession as a physician who already has contributed much to the advancement of physiological science. In the transactions of the American Medical Association of 1858, we find a prize essay by Dr. Flint on the heart's sounds in health and disease; and in the *American Journal of Medical Science* of October, 1861, a paper on the "Action of the Heart and Respiration." Were it for no other reason, the present volume could not fail to be received with interest; but since the object of this work is to represent the existing state of physiological science as applied to the functions of the human body, it carries with it a weight of importance and interest only equalled by the subject of which it treats.

The method of publication, though new in our sister country, is the usual way in which works of an extensive character are issued in ours, and on the Continent. The present volume is the first of a series of four, which will be brought out annually, and be severally complete in themselves. Judging from the able manner in which this volume is written, the series, when perfected, will be one of those publications without which no library is complete. As a book of general information, it will be found useful to the practitioner, and as a book of reference invaluable in the hands of the anatomist and physiologist. An extensive and accurate index is added, which much enhances its value. One fear only have we, which, we trust, has no other foundation than in our imagination, and that is, that there may be some delay in producing the annual volume. In our own country, how often have we to deplore the irregularity of similar publications.

As the book before us embraces the physiology of the Blood, the Circulation, and Respiration, each in itself a subject of such magnitude, it is not our intention to give anything like a synopsis of it, or to cull the only remarkable facts we can find, but rather to touch upon a few passages, out of many, which have caught our attention while perusing it.

It commences with an introduction devoted to physiological chemistry, particularly laying stress upon the general properties and relations of the different classes of proximate principles, as being the most important to physiologists. In the division of proximate principles Dr. Flint follows, with slight modification, the classification of Robin and Verdeil. First, substances which enter into the normal constitution of the organized tissues, and those constituents of the fluids which are used in nutrition. Second, substances which are the result of the wearing out of the tissues, and are not used in nutrition.

The last division is composed of excrementitious matters, the consideration of which, being connected exclusively with excretions, is deferred to be taken up in connexion with that subject.

One question only, in this part of the book, we shall call attention to, on which stress is laid by the author—namely, "the question of the organization of accidentally-effused and coagulated fibrin," as the process of the repair of parts is one of importance in pathology and of great physiological interest. The opinion, held by many pathologists, that it is capable of becoming part of the organized living structure, has its origin in an assumed identity between fibrin and reparative lymph. This opinion Dr. Flint controverts, and shows that there is nothing in such effusions, to lead us to suppose them capable of self-regeneration—that distinctive property of all organized tissues:—

"The changes which these effusions undergo are retrograde in their character; and the fibrin, if it be not absorbed, remains as a foreign substance. The fibrillation which takes place is by no means an evidence of even commencing organization; for in effusions into the tissues it soon disappears, and if the effusion be not too large, the mass breaks down and is finally absorbed. When, on the other hand, effusion of organizable lymph takes place, the process is very different. It is elaborated, indeed, rather than effused; first appearing as a homogeneous fluid, in which fibro-plastic nuclei, then fibres, are developed, and in some instances blood-vessels, lymphatics, and nerves. According to Robin, plastic lymph does not even contain fibrin; much less are the two identical. The process of organization is slow and gradual, and in no case does it take place from the blood, or elements of the blood, suddenly or accidentally effused.

"There can be no doubt that effused and coagulated fibrin is incapable of organization; and it may be further stated, as a general law, that *no single proximate principle, nor mere mechanical mixture of proximate principles,*

effused into any part of the body, ever acts in any other way than as a foreign substance."

The first subject considered in the body of the book is physiology of the Blood. Most of the principal authorities are quoted; and at p. 134 we find a method of quantitative analysis of the constituents of the blood given us by the author. It has the great advantages of simplicity and facility of application, and is sufficiently accurate for all practical purposes. As every new addition to science is a key to help us in unravelling the mysteries of nature, we subjoin it gladly:—

"The blood to be analysed is taken from the arm, and received into two carefully-weighed vessels. The quantity in each vessel may be from two to four ounces. One of the specimens is immediately whipped with a small bundle of broom-corn, previously moistened and weighed, so as to collect the fibrin; and after the fibrin is completely coagulated, the whole is carefully weighed, deducting the weights of the vessel and and broom-corn, which gives the weight of the specimen of blood used. The other specimen is set aside to coagulate.

"The first specimen is used in the estimation of the fibrin and corpuscles; the second is set aside to coagulate, and is used to estimate the albumen. It is important to cover the vessels as soon as the blood is drawn, for, as has been demonstrated by Becquerel and Rodier, blood exposed to the air loses weight rapidly by evaporation.

"We now pass the first specimen of blood through a fine sieve to collect any fibrin that may not have become attached to the wisp, strip the fibrin from the wisp, and wash it under a stream of water. This may be done very rapidly if we cause the water to flow through a small strainer, by which it is broken up into a number of little streams, and knead the fibrin with the fingers, doing this over a sieve so as to catch any particles that may become detached. In this way it may be freed from the corpuscles in five or ten minutes. The fibrin is then freed from most of the adherent moisture by bibulous paper, and weighed as soon as possible. By the following formula we estimate the proportion per 1,000 parts of blood:

"Weight of blood used: Weight of fibrin:: 1,000: Fibrin per 1,000.

"The next step is to estimate the corpuscles. For this purpose a portion of the defibrinated blood, which is carefully weighed, is mixed with twice its volume of a saturated solution of sulphate of soda, and thrown upon a filter which has been carefully weighed and moistened with distilled water, and also, just before receiving the mixture of blood and sulphate of soda, with the saline solution. The fluid which passes through should be about the colour of the serum; if a few corpuscles

pass at first, the liquid should be poured back until it becomes clear. The funnel is then covered, and the fluid allowed to separate, the blood-corpuscles being retained on the filter. The filter and funnel are then plunged several times into a vessel of boiling water, by which all the sulphate of soda which remains is washed out, and the corpuscles are coagulated without changing in weight. The funnel should be again covered and the water allowed to drip from the filter, after which it is weighed, deducting the weight of the moist filter previously obtained, which gives us the weight of the corpuscles. We obtain the proportion of corpuscles to 1,000 parts of blood by the following formula:

"Defibrinated blood used : Corpuscles :: Defibrinated blood per 1,000 : Corpuscles per 1,000.

"The next step is to estimate the quantity of albumen in the serum, and thence its proportion in the blood. For this purpose we first ascertain the quantity of serum in 1,000 parts of blood, which is done by subtracting the sum of the fibrin and corpuscles per 1,000 from 1,000. Having done this, and waited ten or twelve hours for specimen No. 2 to separate completely into clot and serum, we take a small quantity of the serum, about half an ounce, weigh it carefully, and add suddenly twice its volume of absolute alcohol. The albumen will be thrown down in a grumous mass, and the whole is thrown upon a filter, which has been previously moistened with alcohol and weighed. The funnel is immediately covered, and the fluid separates from the albumen very rapidly. We ascertain that no fluid albumen passes through the filter by testing the fluid with nitric acid. After the filter has ceased to drip it is weighed, and the weight of the albumen ascertained by deducting the weight of the filter. The proportion of albumen to 1,000 parts of blood is obtained hy the following formula:

"Serum used : Albumen : : Serum per 1,000 : Albumen per 1,000."

In the chapter on the circulation of the blood we find all the latest experiments, and conclusions deducted from them. As first among which ranks those of Mons. Marey. The subject of the succession of the movements of the heart, and the relative time occupied by the auricular and ventricular contractions, has for a long time occupied the attention of physiologists, and great care was applied to its study by M.M. Chauveau and Faivre, by auscultating the heart exposed in the living animal; but their conclusions could only be an approximation. The question has been, however, at last settled by the late observations of Marey, who has constructed some very ingenious instruments for registering the form and frequency of the pulse.

For a description of this apparatus we would refer the reader to

the book. We subjoin the conclusions arrived at by M. Marey. Dividing the action of the heart into ten equal parts, we have three distinct periods, which occur in the following order.

Auricular Systole.—This occupies two-tenths of the heart's action. It is feeble compared with the ventricular systole, and relaxation immediately follows the contraction.

Ventricular Systole.—This occupies four-tenths of the heart's action. The contraction is powerful, and the relaxation sudden. It is absolutely synchronous with the impulse of the heart.

Diastole.—This occupies four-tenths of the heart's action.

When speaking of the valves of the heart, and especially in connexion with the safety-valve function of the right ventricle, Dr. Flint mentions an anatomical fact worth noticing. He has demonstrated within the last year that the semilunar valves guarding the orifice of the pulmonary artery, allow, under pressure, a certain amount of regurgitation, while a very much greater force is required to cause any insufficiency in the aortic valves. To this fact Dr. Flint is more inclined to attribute the immunity of the lungs, than to the safety-valve function of the right ventricle, so well known as that connected with the name of Mr. King.

The sphygmograph, now becoming so well known to the profession, through the medium of the public papers, and by its use in our larger hospitals, is fully described at p. 255, in connexion with the form of the pulse. Vierordt was the first physiologist to describe such an instrument. He also gave it its name. To Marey, however, belongs the honour of bringing it to such perfection as it has now attained, and of laying before the profession the important practical results it has led him to.

The instrument in Marey's hand, applied to the radial artery, gives a trace very different from that obtained by Vierordt, which was simply a series of regular elevations and depressions.

"Analysing the traces of Marey, we see that there is a dilatation following the systole of the heart, marked by an elevation of the lever, more or less sudden, as indicated by the angle of the trace, and of greater or less amplitude. The dilatation having arrived at its maximum, is followed by contraction; which may be slow and regular, or may be, and generally is, interrupted by a second and slighter upward movement of the lever. This second impulse varies very much in amplitude. In some rare instances it is nearly as marked as the first, and may be appreciated by the finger, giving the sensation of a double pulse following each contraction of the heart. This is called the *dicrotic pulse.*

"As a rule, the first dilatation of the vessel is sudden, and indicated by an almost vertical line; this is followed by a slow reaction, indicated by a gradual descent of the trace, which is not, however, absolutely regular, but marked by a slight elevation indicating a second impulse.

"The amplitude of the trace, or the distance between the highest and lowest points marked by the lever, depends upon the amount of constant tension of the vessels. Marey has found that the amplitude is in an inverse ratio to the tension; which is very easily understood, for when the arteries are little distended, the force of the heart must be more marked in its effects than when the pressure of blood in them is very great. Any circumstance which facilitates the flow of blood from the arteries into the capillaries, will, of course, relieve the tension of the arterial system, lessen the obstacle to the force of the heart, and increase the amplitude of the pulsation; and *vice versâ*. In support of this view, Marey has found that cold applied to the surface of the body, contracting, as it does, the smallest arteries, increases the arterial tension, and diminishes the amplitude of the pulsation; while a moderate elevation of temperature produces an opposite effect.

"In nearly all the traces given by Marey, the descent of the lever indicates more or less *oscillation* of the mass of the blood. The physical properties of the larger arteries render this inevitable. As they yield to the distending influence of the heart, reaction occurs after this force is taken off, and, if the distention be very great, gives a second impulse to the blood. This is quite marked, unless the tension of the arterial system be so great as to offer too much resistance. One of the most favourable conditions for the manifestation of dicrotism is diminished tension, which is always found co-existing with a very marked exhibition of this phenomenon."

This oscillation of the blood in the vessels has been further confirmed by the experiments of Chauveau, with his instrument, which he constructed for estimating the rapidity of the current of the blood in the arteries. He experimented on the carotids of a horse, and found that three currents, with different degrees of rapidity, may be distinguished.

"These experiments give us, for the first time, correct notions of the rapidity and variations of the flow of blood in the larger vessels; and it is seen that they correspond in a remarkable degree with the experiments of Marey on the form of the pulse. Marey showed that there is a marked oscillation of the blood in the vessels, due to a reaction of their elastic walls, following the first violent distention of the heart; that at the time of closure of the semilunar valves, the arteries experience a second, or dicrotic, distention, much less than the first; and following this, there is

a gradual decline in the distention until the minimum is reached. Chauveau shows by experiments with his instrument, that corresponding to the first dilatation of the vessel, the blood moves with immense rapidity; following this, the current suddenly becomes nearly arrested; this is followed by a second acceleration of the current, less than the first; and following this we have a gradual decline in the rapidity to the time of the next pulsation."

Having always been accustomed to recognize the existence of *capillary force* as one of the greatest forces of the circulation, and taught that the circulation of the blood in the *area vasculosa*, previous to the formation of the heart of the fetus, in the blood vessels of acardiac fetuses, and, normally, through the lungs, were all examples of a capillary circulation, dependent upon a vital nutritive attraction between the tissues and the blood,—we were startled to see these views and their soundness questioned by Dr. Flint. He bases his opinions on the following facts. Under the microscope, with each ventricular systole a distinct impulse is seen in the smallest arteries, and there is not, he assumes, the slightest ground for supposing that this flow is not propagated to the capillary system of vessels, but, on the contrary, the action of these little arteries, or arterioles, is fully competent to produce all the variations which are observed in the circulation of that system. The experiments of Sharpey (quoted from Todd and Bowman) have further shown that, after death, the blood can be forced through the capillary system, and returned by the veins, by a force less than that exerted by the heart; and the celebrated experiments of Bichat have demonstrated the passage of black blood through the lungs in asphyxia, and its presence in the arterial system. Dr. Flint, therefore, concludes, that there are no forces of any moment, which are superadded to the action of the right ventricle, in the production of the arterial, capillary, or venous circulation, generally throughout the body, or particularly through the lungs.

In the manner in which Dr. Flint handles those cases of monsters whose blood circulated without a heart, the most remarkable of which was reported by Dr. Houston, in this Journal, we think he is too superficial and hasty. "As he cannot regard as facts these grounds on which some have based their belief in the existence of a force in the circulation, which is independent of the heart's action, he abstains from their discussion," and merely makes notice of them in a foot note.

One other matter connected with the circulation, which explains

many points of equal interest to the pathologist and physiologist, and we have done. It is the relation of the rapidity of the current of the blood to the frequency of the heart's action. The proposition that any increase in the number of pulsations of the heart produces a corresponding acceleration of the general current of the blood, cannot be taken for granted. Dr. Flint observes that it may be enunciated as a general rule "that when acts of the heart increase in frequency they diminish in force." Hering has settled the question experimentally. He made his observations on horses by increasing the frequency of the pulse, on one hand, physiologically, by exercise, and on the other hand, pathologically, by inducing inflammation. If we are justified in applying Hering's observations to the human subject, it is shown that when the pulse is accelerated in disease, the value of the contractions of the heart, as represented by the quantity of the blood discharged, bears an inverse ratio to their number, and is so much diminished as, absolutely, to produce a current of less rapidity than normal.

The following conclusions may be given as the result of experimental inquiry:—

"1. *In physiological increase in the number of beats of the heart, as the result of exercise, for example, the general circulation is somewhat increased in rapidity, though not in proportion to the increase in the pulse.*

"2. *In pathological increase of the heart's action, as in febrile movement, the rapidity of the general circulation is generally diminished, it may be, to a very great extent.*

"3. *Whenever the number of beats of the heart is considerably increased from any cause, the quantity of blood discharged at each ventricular systole is very much diminished, either from lack of complete distention, or from imperfect emptying of the cavities.*"

We shall be glad to receive the remaining volumes of this work, and if they equal the one we have before us, they will form a very valuable contribution to our literature.

On Inhalation, as a Means of Local Treatment of the Organs of Respiration by Atomized Fluids and Gases. By Hermann Beigel, M.D., &c., Assistant-Physician to the Metropolitan Free Hospital. 8vo. London: Hardwicke. 1866.

This book is intended to supply what is confessedly a want in the profession, and it has the additional recommendation of aiming at

a scientific manner of doing what some, both qualified and unqualified, quacks profess great proficiency at in our day.

Dr. Beigel, whose position is sufficient security for his respectability, did we require any such, prefaces his volume by remarking, with reference to therapeutics, that medicines which are said to act on the blood, act on more organs than we want them to act on in a given case. He asks, "Who knows how any medicament, internally taken, acts on the blood?" And having made some observations in that style, he further observes:—"In order to lessen the number of links in the chain of action, the treatment of our day endeavours to become *local* wherever it is feasible. Two excellent results have recently been obtained in this direction—the one is the '*hypodermic injection*,' by Alexander Wood, in Edinburgh; and the other, the '*inhalation of atomized fluids*,' by Sales-Girons." Dr. Beigel does not, however, consider inhalations a panacea for chest disease; his treatise is intended to enable such of our brethren as have had no opportunity of making themselves acquainted with Sales-Girons' invention, "to apply it in appropriate cases, and to form an opinion of their own."

The work before us consists of two parts, and runs over 200 pp. 8vo. Part I. comprises nine chapters, while Part II. contains three (viz., x., xi., and xii.) and a "Conclusion." Scattered over these 200 pages are several illustrative woodcuts, some of which, by the kindness of the publisher, we are enabled to reprint from the blocks sent to us for that purpose. Chapter II. of Part I. discusses a primary and important question in this matter—viz., as to whether the atomized fluids really enter the minute air-passages, gives the history of the controversy, and, supported by the weighty authority of Trousseau, concludes:—"*It is therefore confirmed beyond doubt that atomized fluids enter the respiratory tract and penetrate into the very cells of the lungs; that, therefore, by means of inhalation, remedies most appropriately and successfully may be applied to the organs of respiration.*"

In 1858, Sales-Girons constructed his "Pulvérisateur portatif des liquides médicamenteux." It is described and figured in Chapter III. One of the most modern apparatus is that recently manufactured by Windler, of Berlin. Dr. Beigel considers it to be the best amongst those acting by pressure, for it produces great quantities of an extremely minute cloud; but yet he does not consider it to be free from the inconveniences which adhere to all apparatus acting by means of pressure. We give the figure (Fig.

3) of it from p. 30; but as Dr. Beigel has not subjoined any explanation of the letters on the figure, we omit any reference to them:—

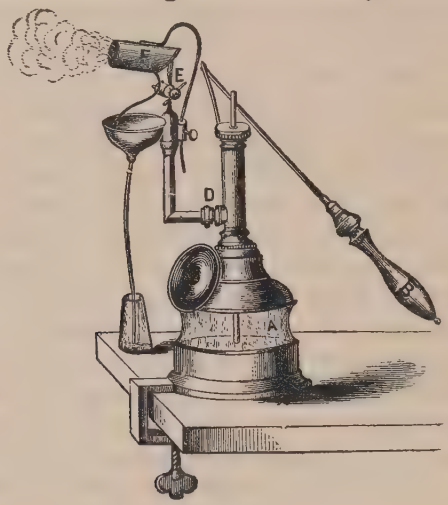


Fig. 3.

By the same maker, apparently, is another atomizer, which Dr. Beigel recommends as distinguished by great simplicity, and by the readiness with which it can be handled. It is illustrated in the following woodcut (Fig. 6), and its mode of action is thus explained:—The air is compressed in a large brass ball by means of a pump; from this brass ball a tube projects, ending in a fine

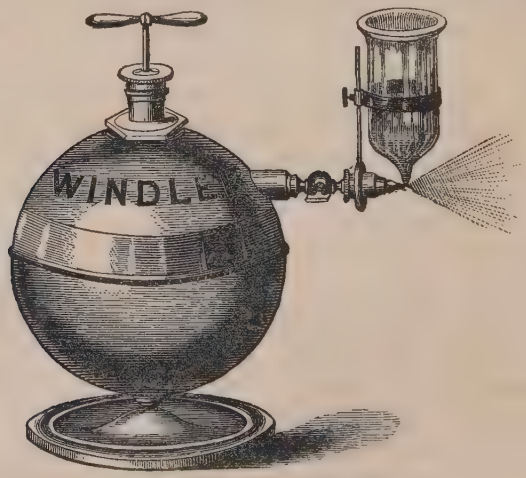


Fig. 6.

opening. The fluid to be atomized is put into a glass vessel, which is placed above that opening. The bottom of the vessel is prolonged tubelike, and likewise contains a very minute opening. As soon as the fluid is poured into the vessel it begins to ooze from that hole, and is formed into a very fine mist, when the stopcock is opened, and a blast of compressed air rushes forth.

Dr. Siegle, of Stuttgart, has, it seems, given the greatest perfection to the inhalation apparatus. He placed the patient in a position to inhale without using his hands or requiring an assistant. In this case steam is the acting power. In Fig. 7 we have this apparatus in conjunction with a screen invented by Dr. Beigel to ward off the effects of acrid or caustic medicaments from other parts of the patient than those intended to be acted on.

The apparatus consists of a boiler, under which is placed a spirit lamp, provided with a thermometer, the lower end of which hangs in the boiler, while the other is free, containing a graduated scale. When the mercury rises to the figure 2 it indicates the temperature and pressure of the steam most suitable for pulverization; the tube descends into the boiler, carrying off the steam therefrom when it is generated by means of the lighted spirit lamp, and having the same effect upon the capillary opening of the other tube, which dips into the vessel with the fluid to be atomized, as the blast of compressed air has—*viz.*, the fluid rises, escapes through the capillary opening, and is turned into an extremely finely attenuated spray, while the patient sits quietly, and inhales comfortably.

Dr. Beigel's screen is seen between the apparatus and the inhaler in Fig. 7.

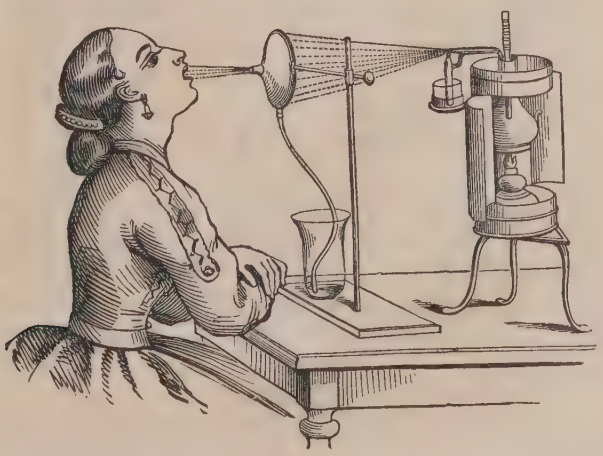


Fig. 7.

Messrs. Krohne and Seseman, of 241, Whitechapel-road, London, at Dr. Beigel's request, manufactured a low-priced atomizer, price 12s. 6d., or, with the screen, one guinea. It needs no explanation, and is illustrated by Fig. 9:—

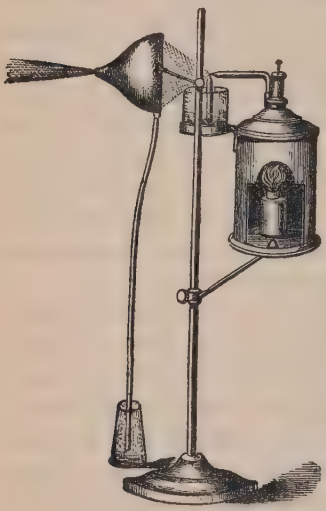


Fig. 9.

Dr. Beigel also recommends his "Traveller's Atomizer" for patients whose business obliges them to travel. It is also manufactured by Messrs. Krohne and Seseman. The whole apparatus, as figured at quarter its actual size in Fig. 10, represents a metal tube, $4\frac{3}{4}$ inches in length and $1\frac{3}{4}$ inches in diameter. The upper part of the tube is occupied by the boiler, which is also provided with a valve, the lower by the spirit lamp. The space between the lamp and the boiler contains, when the apparatus is not acting, the vessel for the fluid to be atomized. The whole is packed in

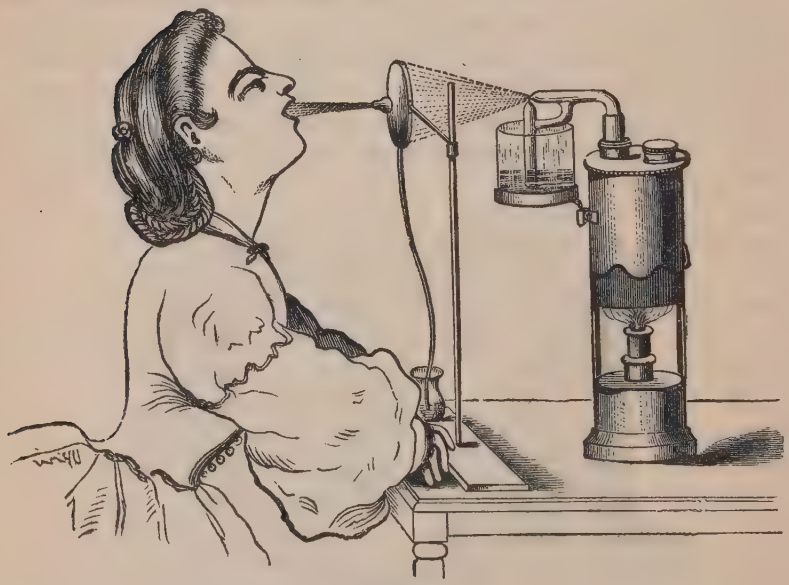


Fig. 10.

a box, 7 inches long, $2\frac{1}{2}$ inches broad, and 2 inches high. The

capacity of the boiler is 1½ oz. of water, but for action is filled, only to six or seven drachms, which in about two minutes begin to be turned into vapour, by which one ounce of the fluid is atomized in thirteen minutes.

In Chap. IV. Dr. Beigel observes that he makes patients generally begin by taking one hundred inhalations, making a pause of a few seconds after every ten or fifteen deep inspirations, and he afterwards increases the number according to the indications of each particular case.

In Chap. V. he concludes that the strength of the medicated fluid is but very slightly altered by its mixture with steam, and that about half of the mixture of steam and medicated spray passes the glottis, and penetrates into the respiratory tract.

The medicaments which can be atomized and which have been in that condition found to be beneficial in diseases of the respiratory organs are, according to Dr. Beigel (Chap. VI., Part I.):—*Nitrate of silver*, dose three to five grains in an ounce of distilled water, serviceable in inflammatory conditions of the pharynx and larynx; *nitrate of aluminium*, two to five grains in an ounce of water, first used by Dr. Beigel for inflammation, and also in nervous affections of the larynx and trachea; *tannin* astringent and styptic, dose one to ten grains in an ounce of water; *alum*, one to twenty grains as above; *sesquichloride of iron*, five to twenty-five minims in an ounce of water; *acetate of lead*, three to ten grains as above; *sulphate of zinc*, one to ten grains; *common salt*, *tincture of opium*, *liquor arsenicalis*, *pure water*, *glycerine*, *lime water*, one part of lime to one hundred of water; and *cod-liver oil*. Dr. Beigel further mentions that the salts of iodine, chlorine, and bromine, as recommended by other authors.

Chapter VII. treats of the immediate effects of the inhalation of atomized fluids; Chapter VIII. discusses plans for securing inhalations in hospitals and dispensaries; and Chapter IX. dwells on inhalation of volatile chemicals, gases, &c. Dr. Beigel maintains the efficacy of inhaling oxygen "if applied to the proper cases." Of course he has his own apparatus for this purpose, and on p. 74 he informs us that "it differs from the inhalers hitherto constructed, not only in shape and finish, forming a fine ornamental vase, but [that it] tends also to remedy some inconveniences connected with other similar apparatus. The patient was hitherto, after each inspiration, obliged either to turn his face from the apparatus, in order to perform the expiration, or to expire into the apparatus,

whereby the oxygen became mixed with the expired air." The following section (Fig. 14) of the mouth-piece of Dr. Beigel's inhaler sufficiently explains its construction:—The two valves (A and B) are made of vulcanite, and acting extremely easily, close

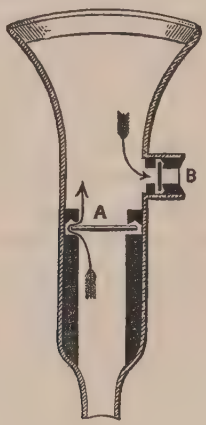


Fig. 14.

and open with great precision. "It is obvious (remarks Dr. Beigel) that the inhalation of the oxygen with each inspiration—during which the valve B gets closed—takes place in the direction of the arrow at A, while during expiration A closes, and the expired air escapes in the direction of the arrow at B."

The second part of Dr. Beigel's work is a treatise on inhalation applied to special diseases, and is, in fact, the practical portion which concerns our profession particularly.

Chapter X. furnishes the reader with a collection of statistics, which are summed up in this sentence:—"*From these figures we learn that in England during a period of ten years rather more than the fourth part of the whole population dies, and that in one of four of all deaths, the cause is a disease of the organs of respiration.*"

Chapters XI. and XII. treat on—

I. *Diseases of the Pharynx, Larynx, and Trachea.*

1. Laryngeal Hyperæsthesia.
2. Œdema Glottidis.
3. Laryngitis.
4. Croup.
5. Diphtheria.

II. *Diseases of the Bronchi and Lungs.*

6. Bronchitis.
7. Asthma.
8. Emphysema.
9. Hæmoptysis—Spitting of Blood.
10. Phthisis—Consumption.
11. Grangræna Pulmonum.
12. Whooping Cough.

Dr. Beigel's remarks on these subjects are illustrated by lengthened and, in some instances, tedious details of thirty-two cases which fell under his care. His conclusion is to the point, and as it is so we feel no hesitation in inserting it here, as follows:—

"I should not like to conclude these pages without making the following remarks on the cases contained in the second part. They were selected out of a considerable number of which I possess notes, too numerous to be incorporated with this treatise, without making it more voluminous than was intended. With a very few exceptions, the cases are such as have been cured or very much improved by inhalation, and this is just the point at which I am aiming. It was by no means my intention presenting cases only in which the inhalatory treatment has been applied successfully, to show that such results will always be obtained by the administration of atomized fluids. That was not my purpose. Inhalation, not being generally used, or even known, I, being convinced that it deserves a prominent place in the treatment of pectoral disease, was anxious to prove—particularly to those gentlemen who proclaim it to be void of any value—that a cure can be effected by the new method, and, I may add, in a manner which gives, provided the case be apt for inhalations, the preference to that method over all other kinds of treatment. The final aim of every physician is to *cure* the patient, and I do not consider that we are justified in protracting a disease, or allowing a patient to die, without having exhausted every possible therapeutic means; but my intention was to show that inhalation is a source by no means to be neglected in diseases of the organs of respiration. He who expects wonders from that mode of treatment will soon be disappointed: he who recommends it as an infallible one, will prove a false prophet; but an unprejudiced application of the atomizer will lead to the conviction that the invention of Sales-Girons has been a most valuable addition to therapeutics."

In these last remarks we fully concur, and we strongly advise our brethren to make themselves practically acquainted with the

merits of a system which, *primâ facie*, must appear to all sensible men to have on its side that *probability* whereof our great ethical authority affirmed, that it is "the guide of life." To this end we commend to them Dr. Beigel's book.

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2. *A Handy-book of Ophthalmic Surgery.* By John Z. Laurence, F.R.C.S.; M.B. (Univ., Lond.); Surgeon to the Ophthalmic Hospital, Southwark; Editor of the *Ophthalmic Review*, &c.: and Robert C. Moon, House Surgeon to the Ophthalmic Hospital, Southwark. Illustrated. London: Robert Hardwicke. 1866. Pp. 160.

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4. *Tension of the Eyeball, Glaucoma, &c. Some Account of the Operations practised in the Nineteenth Century for their Relief.* By James Vose Solomon, F.R.C.S.; Surgeon to the Birmingham and Midland Eye Hospital, &c. London: Churchill and Sons. 1865. Pp. 80.

5. *Defects of Sight and Hearing: their Nature, Causes, Prevention, and General Management.* By T. Wharton Jones, F.R.S., F.R.C.S.; Professor of Ophthalmic Medicine and Surgery in University College, London, &c. Second Edition of Defects of Sight. London: Churchill and Sons. 1866. Pp. 168.

6. *On Abscess and Tumours of the Orbit.* Part I. By Spencer Watson, F.R.C.S., Eng.; Assistant-Surgeon King's College, and the Central London Ophthalmic Hospitals. Reprinted from the *Medical Mirror*. London: H. K. Lewis. 1866.

7. *Injuries of the Eye, Orbit, and Eyelids; their Immediate and Remote Effects.* By George Lawson, F.R.C.S., Eng.; Assistant-

Surgeon to the Royal London Ophthalmic Hospital, Moorfields, and to the Middlesex Hospital; late Assistant-Surgeon Rifle Brigade. London: Longmans, Green, and Co. 1867. 8vo, pp. 400.

8. *Ophthalmiatrische Beobachtungen* von Dr. med. ALBERT MOOREN, dirigirendem Arzt der städtischen Augen-Kluick zu Düsseldorf. Berlin: Hirschwald. 1867. 8vo, pp. 342.

Ophthalmological Observations. By Dr. ALBERT MOOREN, Chief Physician to the Civic Eye Hospital at Düsseldorf.

THE above list comprises but a small portion of the works relating to ophthalmic matters which have lately appeared; indeed, few subjects receive such general as well as special attention at present as ophthalmology, and the number of publications on the subject is so great that it can be no easy task, even for those who devote themselves exclusively to the specialty, to keep themselves well informed in its literature. Ophthalmic medicine, which had for a long time remained almost stationary, received a powerful stimulus by the discovery of the ophthalmoscope, and the writings have increased to such an extent that several periodicals, in various languages, are now exclusively devoted to ophthalmic subjects.

Mr. Dixon's book is essentially a practical one, written by an observant author, who brings to his special subject a sound knowledge of general medicine and surgery. The work does not detail the opinions or practice of others, nor is it a systematic treatise, but is simply what its title implies, and being the result of the author's own observation and experience, carries great weight. The diseases and abnormal conditions of the interior of the eye, as revealed by the ophthalmoscope, are treated of rather briefly, as are also the anomalies of refraction and accommodation, and the greater part of the work is devoted to the consideration of those diseases and conditions which we are most commonly called upon to treat.

The prevailing eye disease in this country, and the most frequent cause of blindness, is the well-known granular conjunctivitis, which is epidemic, and also in many places endemic. When it is remembered that the enamel is occasionally worn off artificial eyes by the granular surface of the conjunctiva, we need not be surprised at the effect produced by the rasping of such a surface upon a delicate vital structure like the cornea; this membrane becomes vascular and opaque, presenting what is generally called in this

country pannus. In many of these cases, although all active disease may have subsided in the conjunctiva, and the granulations become cicatrized, and the surface smooth, the cornea still remains vascular and opaque, and causes an almost hopeless blindness. In such cases Mr. Dixon recommends inoculation of the eye with purulent matter, taken from a patient suffering from purulent ophthalmia—a plan of treatment proposed a good many years ago, and one which we can recommend, having ourselves seen the best results follow its adoption; the matter used may also be gonorrheal. This mode of treatment should, however, be restricted to cases where the cornea is entirely vascular, for if any portion be transparent, such part will almost entirely slough. We would also urge the use of compress bandages in the treatment of these and all other cases of purulent ophthalmia.

Another, but yet more terrible, because more hopeless disease, is known by the name of glaucoma, and is fortunately rather rare in this country; the majority of the instances of this malady, as well as the worst which have come under our notice, have been in English persons, or individuals of English or foreign extraction, resident in Ireland. From the following passage it would appear Mr. Dixon is of opinion that there is necessarily in every case a violent inflammatory attack:—"There are two distinct forms of glaucoma; in one the outburst of inflammation is preceded by a long period of premonitory symptoms; in the other the attack comes on with startling suddenness." But we believe there is a class of cases in which this disease progresses silently, gradually, and insidiously, terminating in complete blindness, and in which, no matter how long it may exist, no such outburst of inflammation occurs; indeed we rather hesitate to use the term inflammation at all in connexion with certain forms of chronic glaucoma; the appearances are rather those of atrophy than of inflammation; the evidences of inflammation are very doubtful, and are very unlike those we have been taught to regard as proofs of such a condition. It may no doubt be urged that atrophy is merely a sequence of inflammation, but the inflammatory stage in this disease, if such exists, must be very brief, and is rarely recognized, while the structural changes are at once seen, and may be watched in their progress from week to week. The whole subject of glaucoma possesses such interest that the temptation to discuss it is very great, but space forbids our doing so. Up to the time von Graefe proposed iridectomy as a remedy for glaucoma, the disease was generally held to be incurable.

It is unnecessary to remind our readers of the wholesale and indiscriminate practice of iridectomy, which tended to bring the operation into disrepute, nor of the controversy respecting its utility, which has not yet terminated; opinions are still divided; some of the most eminent oculists being still opposed to the operation. Amongst those who were for a long time adverse to iridectomy in glaucoma was, we believe, Mr. Dixon, but we find by the work under consideration that he has seen reason to change his views; for he says at p. 239:—"We may well be satisfied with the knowledge that in iridectomy we have a means of controlling an otherwise incurable disease, and saving patients from the blindness which was formerly its inevitable result." And again, at p. 242, he alludes to "the benefits of iridectomy, without which utter blindness must inevitably have closed the scene." This mature and deliberate opinion of such an honest and sound surgeon as Mr. Dixon, must carry great weight indeed. There can, we believe, be now no doubt as to the propriety and necessity of the operation. Knowing the fatality to vision of the disease, we are bound in duty to our patient, as well as to ourselves, to practice iridectomy.

Belladonna, or its alkaloid, atropia, is one of the most active and salutary remedies in ophthalmic therapeutics. Yet it is in the work before us, we may say, conspicuous by its absence. It is mentioned in connexion with scrofulous iritis and syphilitic iritis in infants, and that is all. We have read somewhere in print an explanatory letter from Mr. Dixon, stating that he had absolutely written a paragraph on the necessity for atropia in iritis generally, but that by mere accident it was not sent to the printers, and the matter escaped his attention; but, for the very few who may have seen that letter, many will have read his work, and some will consider that he still maintains his old doctrine respecting the inapplicability of atropia in syphilitic iritis of adults. But the omission by the author of this agent in other affections is not merely accidental, and we cannot but look upon it as a most necessary part of our treatment in very many other conditions, such as injury or ulceration of the cornea, with formation of pus in the anterior chamber, corneitis, aquo-capsulitis, perforating ulcer or wound of the cornea, &c., &c. In all these it will be found that the iris becomes engaged, and its pupillary opening endangered. In addition to the mechanical action of atropia, we believe it exerts, also, a beneficial antiphlogistic action on the eye, and lessens the intraocular vascularity. Having seen many instances

where vision was lost through the non-employment of belladonna, we entertain strong opinions on the subject; and we would willingly consent to have nitrate of silver altogether expunged from the oculist's medicamenta, if we could thereby secure the more general employment of atropia. The latter may, in any doubtful case, cause temporary inconvenience; it cannot, however, do any harm, and it may do good, whereas nitrate of silve rmay do good, but it may also do an infinity of mischief.

Messrs. Laurence and Moon's Handy-book is eminently scientific and practical, written up to the present state of ophthalmic knowledge, and fully sustaining Mr. Laurence's reputation as an original thinker, and a clever and learned author. We would draw particular attention to Mr. Laurence's ingenious and valuable adjusting binocular ophthalmoscope, described and figured at p. 9, which possesses advantages over Giraud-Teulon's instrument. We would likewise direct attention to his head-rest, which acts as a "very useful assistant, for it does all that is required of it without being in the surgeons way." This apparatus may be screwed on the operating table or sofa, and holds the head of the patient about to be operated on as in a vice. There are very many practical points in the book we would wish to discuss, but we can only refer our readers to the work itself, which we can do with every confidence, and the assurance that they will find in it much valuable and novel information. At p. 67 the authors state that "on no account should the acetate of lead in solution be employed in the treatment of ulceration of the cornea, as some of it will, in all probability, be precipitated, and become adherent to the surface of the ulcer, and may even be permanently fixed in the cicatrix," and they strongly recommend atropia solution. This warning, which cannot be too frequently urged, emanated, if we recollect aright, from Dr. Jacob, for whom Professor Apjohn analyzed some scales removed from the cornea.

Some of the most troublesome affections with which the surgeon has to deal are those of the lachrymal apparatus; they require very great care and persevering attention on the part of the surgeon, and the utmost patience on the part of both practitioner and patient. And after months or years even of the most careful treatment, they will sometimes be but slightly benefited. It is proposed in this work to revive the old recommendation, of obliteration of the lachrymal sac, and removal of the lachrymal gland. Mr. Laurence has

carried out the latter operation with perfect success in nine instances, as we learn from the October number of the *Ophthalmic Review*, where Mr. Laurence says, "he considers removal of the lachrymal gland applicable to those cases of inveterate lachrymal fistula, which other methods, after a fair trial, have failed to cure, the operation offering the best prospect of a radical and permanent cure." Mr. Laurence states that the eye continues completely moist after the removal of the gland. The chapters on vision, and optical defects of vision, should be carefully perused; the fact of their being almost a reprint from Mr. Laurence's previous work, *Optical Defects of the Eye*, 1865, does not detract from their great value.

Dr. Williams' Essay obtained the Boylston prize, given by the Harward University, and is a carefully written, though necessarily brief compilation of modern discoveries, doctrines, and practice. This author has been led into error, as indeed many others have been, in assigning to Mr. Critchett the merit of originating the operations for the removal of entropion and staphyloma, the credit of which is due to Sir William Wilde. Many of the Irish profession have witnessed, and some no doubt have practised them long before Mr. Critchett performed them, or published his accounts of them. We are quite sure Mr. Critchett was not aware of Sir William's having described or performed these operations before himself. Dr. Williams speaks of diabetes as a renal disease, but we doubt whether this view is a general one in America.

The employment of anesthetics in ophthalmic practice has been, and indeed is still, a disputed point; we believe they are indicated in many cases either to allay pain or nervous apprehension on the part of the patient, or to facilitate the performance of delicate operations. Dr. Williams, as well as the whole of the Boston surgeons and physicians, prefer ether to chloroform as a safer agent for such purposes.

Dr. Williams has proposed and carried out "with invariable success" a perfectly novel feature in the operation of flap extraction; after the cataract has been removed in the ordinary manner, and under the influence of ether he brings the edges of the corneal flap together by sutures, and thus places the flap in "conditions where its displacement will be prevented, its union, by primary adhesion, promoted, and swelling and suppuration of its border rendered most unlikely to occur. Prolapsus of the iris, another of the sequelæ we have most to fear, is rendered almost impossible." He employs "a

straight needle, only a quarter of an inch long, made by cutting off the requisite length from the head of the finest sewing needles, and forming a new point. The needle is held and passed through the cornea by means of a pair of firm forceps, and the suture, formed by a single strand of silk or the finest thread, is tied, not too tightly. This is allowed to remain until it cuts itself out, which is sometimes not for several days, or even weeks; as there is danger of re-opening the wound if its removal is attempted, unless during anesthesia." He has "known it to remain *in situ* seven weeks without causing inconvenience."

Mr. Vose Solomon's treatise, which embodies a paper read by him before the English Midland Medical Society, and published in the *British Medical Journal* in 1863, is a learned article, in which much bibliographical knowledge and research are brought to prove that Mr. Hancock has no claim to originality in his operation of division of the ciliary muscle for the relief of glaucoma. Mr. Solomon condemns this operation, and states that it has "in the hands of every surgeon who has given it an extended trial, failed to cure idiopathic glaucoma." Mr. Solomon, however, has originated a different method of dividing the ciliary muscle, and calls it intraocular myotomy, which operation he extols as a remedy in cases of glaucoma, disorganized and tense globes, myopia, acute choroiditis, and choroido-retinitis. It is stated that by this operation is effected division of the ciliary muscle, division of the iris close to its origin, and an "important neurotomy of the ciliary nerves, and, perhaps, filaments of the fifth pair." Mr. Solomon lays great stress upon the state of the digestive organs, and says that when these are deranged from any cause, or "where there is evidence of constitutional syphilis, intraocular myotomy is not advisable." Mr. Solomon's paper is somewhat of a controversial character, and will, no doubt, possess great interest for the small number of practitioners who may still cling to division of the ciliary muscle or intraocular myotomy, in preference to the more established operation of iridectomy. The author has committed an offence of which an ophthalmic surgeon, above all others, should not be guilty, in employing type of such a small size, and so close together, that it is, in our opinion, detrimental to the reader's vision; nearly one-half of the page, moreover, is blank space.

Professor Wharton Jones' little book appears to have been

written more for the laity than the profession, and probably with a view to popularize science and medicine, and seems to belong to the half-crown volumes of the Popular Medical Series. Such works as this may possibly be of service, but we very much doubt their necessity or utility.

Mr. Watson's brochure, reprinted from the *Medical Mirror*, is an enumeration and careful analysis of a number of cases of diseased conditions in the orbit, which have from time to time been recorded by various authors, and will prove a useful and acceptable compilation to the busy practitioner who may have occasion to refer to its pages.

Since the foregoing was written, Mr. Lawson's book has come to hand, and we regret that the amount of space at our disposal is quite inadequate to the discussion of the merits of the work, or even for quotations from its pages. We can only briefly refer to its contents, and hope our readers will study the work itself, which will well repay the time spent in its perusal.

A very common accident is injury from lime, and the author repeats the old advice (so seldom, unfortunately, acted on) of employing weak vinegar and water, or dilute acetic acid and water, in case the patient is seen very early after the accident. He says at p. 56:—"In all injuries to the eyes from chemical agents, a solution of the antidote should be first used, if the patient is seen sufficiently early to render its application of service." Thus, after injuries from strong acids, weak solutions of bicarbonate of potash, or sesquicarbonate of soda, are recommended to syringe the parts with, oil and glycerine being the most suitable applications in the subsequent treatment. Attention is also drawn to a not uncommon accident—abrasion of the epithelial layer of the cornea; this is seen frequently in mothers who are suckling; the infant claws at the eye and frequently scrapes off some of the epithelium. In unhealthy lactating women the prognosis should be very guarded, as the injury, though apparently so trivial, may be followed by very grave results. Mr. Lawson is one of the only writers who, in our opinion, uses the term *onyx* correctly; that term signifies a collection of pus in the anterior chamber, whereas *hypopion* signifies pus in the laminæ of the cornea.

From the earliest times oculists have ransacked the chemical laboratory for agents and substances to cure opacities of the cornea.

Mr. Lawson practically remarks:—"It is often astonishing to witness how much clearing of the cornea will be effected by the natural restorative power of the patient, if it is unthwarted by drops into the eye. * * * Numerous remedies were vaunted as of service for removing or diminishing the nebulæ of the cornea, but I believe that none are specific, and that the benefit which may result from the use of any of them is solely due to their acting as a slight irritant, and by their stimulating the absorbent vessels of the cornea to an increased activity." We quite agree with the author, and cannot too severely condemn the practice of employing nostrums, such as prussic acid, bisulphide of carbon, &c., to cure incurable opacities. Mr. Lawson directs attention to the mode of removing deposits of lead from the cornea, and figures, at p. 89, a small knife, curved on its convex and cutting edge, which will be found very handy. We have ourselves practised the removal of such deposits from the cornea, occasionally with very beneficial results; the eye requires very careful after treatment, however, as a low form of inflammation is not unlikely to follow, with formation of pus in the anterior chamber and iritis. In treating of staphyloma Mr. Lawson follows his school, and ascribes to Mr. Critchett the operation for the removal of staphyloma by abscision and ligature—an operation we learned from Sir Wm. Wilde, and practised long before Mr. Critchett; he quotes also, from the *Archiv. für Ophthalmologie*, von Graefe's method of treatment by seton; this method is also of old origin, and, in our opinion, valueless. Some of the readers of this Journal will remember seeing cases treated in this manner by Dr. Jacob; and we recollect one instance, in particular, about ten years ago, in which Wilde's operation was performed on a patient with the useless seton still *in situ*.

One of the most remarkable injuries to the eye is that recorded, from the practice of Mr. Critchett, at p. 123, in which the iris was ruptured, so that a second pupil, bounded on every side by iris, was formed, and yet neither cornea, sclerotic, nor lens had been wounded.

A very good description and delineation of Liebreich's invaluable eye-bandage will be found at p. 172.

The chapters on intraocular hemorrhages, gunshot wounds, and rupture of the globe, are most interesting and instructive; but even more so will be found that part which treats of sympathetic ophthalmia, an affection deserving our gravest and most anxious

consideration, as many eyes are lost through ignorance or neglect of this most formidable malady. Frequently, after injury of one eye, sympathetic inflammation attacks the second eye, and proceeds, if unrecognized and unchecked, to the destruction of vision in it. The recognition and treatment of this terrible disease becomes, then, of the highest importance; and such is its nature that, generally, nothing less than the excision of the injured and offending eyeball will place the second eye in safety. The operation of enucleating the globe out of its capsule, first suggested by Dr. O'Ferrall, of this city, is very easily and speedily performed, and followed by rapid recovery.

Not the least interesting features in the work are the cases appended to the description of each injury; a case accurately and carefully recorded is most invaluable. "The truthful record of what has been," Mr. Lawson remarks, "makes a more lasting impression on the mind than the mere detail of what may be." Although the work is entitled "Injuries," the reader will find in it admirable brief accounts of nearly every operation on the globe, and particularly of those for cataract most in use in the present day.

We have derived both pleasure and instruction from the work, and heartily congratulate Mr. Lawson on its production; it is lucidly and concisely written, and a thoroughly practical and trustworthy work, which must become a standard one in our libraries. The book reflects great credit also on its publishers; the type is clear and sufficiently large, the paper excellent, and the illustrations good. Appended to it is an abstract of the surgical report of the Royal London Ophthalmic Hospital, and a set of test types.

Dr. Mooren's work contains a careful analysis of the cases which occurred in his practice during the nine years, 1856 to 1865, with commentaries and practical observations; the work is in the form of a text-book, and contains very valuable statistical tables on various subjects, such as the annual number of patients treated at various ophthalmic hospitals, viz.:—Royal London, Moorfields, 15,951; Ophthalmic Hospital, Moscow, 7,924; Birmingham, 7,358; Berlin, 6,800; Düsseldorf, 4,117; Manchester, 4,005. From another table it appears the number of cataract operations performed annually, are—Berlin, 325; London, 244; Moscow, 182; Vienna, 170; Prague, 153; Düsseldorf, 143. It is curious when we, residing in Ireland, and rarely witnessing the operation for strabismus,

read of its being performed 580 times annually in Berlin; 252 in Düsseldorf; 240 in Birmingham; and 222 in London.

Dr. Mooren is the chief and acting oculist to the Eye Hospital in Düsseldorf, which possesses 80 beds and upwards of 4,000 patients, during the course of the year. The work now before us shows how he has taken advantage of his opportunities and worked up his abundant materials into a most excellent publication, replete with practical information and scientific knowledge; one of the advantages of the book is that its author is completely informed, and also imparts information himself, on all the latest discoveries and improvements in his specialty. His views and assertions are based on and supported by cases and statistics quoted in the text.

The author devotes considerable space to the subject of sympathetic inflammation; in 37 cases of total blindness, quoted as resulting from sympathetic disease, the original cause was, in 12 wound of sclerotic and ciliary body, 6 wounds of the globe generally, 7 reclination of cataract, 4 staphylomatous growth, 1 prolapse of iris, 1 choroiditis, 3 irido-cyclitis, 3 detachment of retina after irido-cyclitis. In 20 other instances impairment of vision to a greater or less extent, short of blindness, had resulted from sympathetic inflammation attributable to the following causes: reclination 9, injuries 4, artificial eye 1, choroiditis 6. The author attributes the disease to, 1st, direct injury of the ciliary region; 2nd, mechanical irritation of the ciliary body, either by a foreign body (artificial eye), or by the lens acting as a foreign body in consequence of reclination, dislocation, staphylomata; 3rd, every inflammation of any portion of the uveal tract which culminates in cyclitis, and lays particular stress on the following aphorisms:—"In all the observed cases, painfulness of the ciliary body on external pressure was the never-failing symptom which denoted the danger of sympathetic disease. Mere prevention or restriction of the accommodation power in the healthy eye was, taken by itself, no proof of the existence of sympathetic disease; this fact became of great importance only when it arose in combination with painfulness of the ciliary body. When these phenomena were present the only possibility of saving the second eye lay in enucleation of the one previously diseased."

A very curious and rather rare form of malformation is mentioned at p. 41, as occurring in two brothers, viz., absence of the eyeballs. The orbits and lids were perfectly formed, and the recti muscles were present; inserted, the author conjectures, into the capsule of tenon. The position of the optic nerve was indicated

by a little fossa, and when it was endeavoured to open the lid widely, the recti muscles projected during the struggles of the child.

The chapter on diseases of the lens is most interesting and important. Dr. Mooren gives tabular statements of his cataract operations, from one of which it appears he has performed the following operations:—1st. Normal extraction, 187; lost 17 = 9 per cent. loss. 2nd. Extraction, with previously performed iridectomy, 229; lost 14 = 6 per cent. loss. 3rd. Extraction, with accompanying iridectomy, 11; lost 1 = 9 per cent. loss. 4th. Traction (spoon) extraction, 34; lost 12 = 32 per cent. loss. 5th. Linear sclerotic extraction (Graefe's new method), 102; lost 3 = 3 per cent. loss. With the exception of the traction extraction, these results are, we consider, remarkably satisfactory. We cannot conceive, however, how so high a mortality has been obtained for the spoon extraction, for in our own hands the loss has not been at all equal to Dr. Mooren's, and the per centage of lost eyes, after this operation by Mr. Bowman, has been about 8, and somewhat about the same in the hands of von Graefe. The most favourable results were obtained from Graefe's new modified linear extraction, which seems at present likely to supersede all other methods; but it requires some additional experience before pronouncing on this point. Cataract operations appear just now to be on their trial. There seems also to be a good deal of fashion in the matter. Each new extraction method is taken up and proclaimed by its practitioners as destined to supersede and outlive all others. Dr. Mooren's results are, we believe, equal, if not superior, to Graefe's, three per cent. loss being very small. The old flap extraction appears to be put aside altogether, but it may possibly be only temporary; certainly few methods can give better results than Graefe obtained from it, viz., 5 per cent. loss, 11 per cent. half cured, and 84 per cent. complete recoveries. Dr. Mooren properly condemns the operation of couching or reclination, a method now happily almost unknown in this country, but one which must still be practised largely in the Rhenish provinces, for it is mentioned in the work before us as a very frequent cause of sympathetic inflammation.

We regret not having space to quote further from this work, or to detail any of the particulars from the ophthalmoscopic department. One of the most interesting tables we have seen is that relating to infiltrations of the retina, their causes, conditions, and

amenity to treatment. These "observations" are a most important and valuable addition to our knowledge, and will be found highly instructive as well as interesting.

On the Anatomy of Vertebrates. Vol. I.: *Fish and Reptiles.* Vol. II.: *Birds and Mammals.* By Richard Owen, F.R.S.; Superintendent of the Natural History Departments of the British Museum; Foreign Associate of the Institute of France, &c. London: Longmans, Green, and Co. 1866.

This work of Professor Owen's is intended to complete the outline of the organization of the animal kingdom, which was begun by the *Lectures on the Anatomy and Physiology of the Invertebrates*, published in 1834. In a Journal like ours, devoted to the more practical details of the medical profession, it would be somewhat out of place to enter into any very critical review of a work on comparative anatomy. But when that work proceeds from so eminent a member of our profession as Professor Owen—one who holds the very highest place in these countries attainable by a biologist—it needs but little excuse to trespass for a little time upon the reader's attention, while we notice, as briefly as possible, the subject matter of these volumes.

The Vertebrates are divided into two groups. *Hæmatotherma*, having the four-chambered heart, spongy lungs, and hot blood; and the *Hæmatocrya*, having less perfect breathing organs, less complex heart, and cold blood. This division is acknowledged to be altogether an artificial one, but is selected as convenient. The first volume is devoted to the consideration of the latter group, which is subdivided into five sub-classes:—1. The *Dermopteri*, containing the Cyclostomous fishes. 2. The *Teleostomi*, containing the Malacopteri, Anacanthini, Acanthopteri, Plectognathi, Lophobranchii, and Ganoidei. 3. The *Plagiostomi*, containing the Holocephalous and Plagiostomous fishes, with the Lepidosiren. 4. The *Dipnoa*, containing the extinct orders—Ganocephala and Labyrinthodontia, and the Batrachia. 5. The *Monopnoa*, containing all the recent and extinct orders of true reptiles. It will be seen that the first four classes contain those Vertebrates that at one time or other, during their existence, breathed by means of gills; and the last those which always inspired by means of lungs; and we scarcely

think these five classes will supersede the nearly corresponding ones of Pisces (=1, 2, 3), Batrachia (=4), and Reptiles (=5).

The Hematocrya are treated of as one group. In fishes the bones continue to grow throughout life. In most reptiles the long bones retain a layer of ossifying cartilage beneath the terminal articular cartilage, and growth continues at their extremities while life endures. Some of the long bones in frogs have ossified ends or epiphyses, and the seat of growth is in the cartilaginous crust at the ends supporting the epiphyses. The gradual development of the portions of the skeleton in each class is well and succinctly traced in the second chapter, but does not admit of being epitomized. We, however, append the general conclusion, as showing the peculiar views of the author as to the division of the bones of the head:—

"At the outset of the study of Osteology it is essential to know well the numerous bones in the head of a fish, and to fix in the memory their arrangement and names. The latter, as we have seen, are of two kinds, as regards the bones of the neuroskeleton: the one kind is 'general,' indicative of the relation of the skull bones to typical segment, and which names they bear in common with the same elements in the segments of the trunk; the other kind is 'special,' and bestowed on account of the particular development and shape of such elements, as they are modified in the head for particular functions. A great proportion of the bones in the head of a fish exist in a very similar state of connexion and arrangement in the heads of other vertebrates, up to, and including, man himself. No method could be less conducive to a true and philosophical comprehension of the vertebrate skeleton than the beginning its study in man—the most modified of all vertebrate forms, and that which recedes furthest from the common pattern. Through an inevitable ignorance of that pattern, the bones in Anthropotomy are indicated only by special names more or less relating to the particular forms these bones happen to bear in man; such names when applied to the tallying bones in lower animals, losing that significance, and becoming arbitrary signs. Owing to the frequent modification by confluence of the human bones, collections of them, so united, have received a single name, as, e. g. 'occipital,' 'temporal,' &c.; whilst their constituents, which are usually distinct vertebral elements, have received no names, or are defined as processes, e. g. 'condyloid process of the occipital bone,' 'styloid process of the temporal bone,' 'petrous portion of the temporal bone,' &c. The classification, moreover, of the bones of the head in Human Anatomy, viz., into those of the cranium and those of the face, is artificial or special, and consequently defective. Many bones which essentially belong to the skull are wholly omitted in such classification.

"In regard to the archetype skeleton, fishes, which were the first forms of vertebrate life introduced into this planet, deviate the least therefrom; and according to the foregoing analysis of the bones of the head, it follows that such bones are primarily divisible into those of—the Neuroskeleton, the Splanchnoskeleton, the Dermoskeleton. The neuroskeletal bones are arranged in four segments called—the Occipital vertebræ, the Parietal vertebræ, the Frontal vertebræ, the Nasal vertebræ.

"Each segment consists of a 'neural' and a 'hæmal' arch (Fig. 81, N, H). The neural arches are—N I. Epencephalic arch (bones Nos. 1, 2, 3, 4); N II. Mesencephalic arch (5, 6, 7, 8); N III. Prosencephalic arch (9, 10, 11, 12); N IV. Rhinencephalic arch (13, 14, 15).

"The hæmal arches are—H I. Scapular arch (50, 52); H II. Hyoidean arch (38–43); H III. Mandibular arch (28–32); H IV. Maxillary arch (20–22).

"The diverging appendages of the hæmal arches are—1. The Pectoral (54–57); 2. the Branchiostegal (44); 3. the Opercular (34–37); 4. the Pterygoid (23–24).

"The bones or parts of the Splanchnoskeleton which are intercalated with or attached to the arches of the true vertebral segments are—the Petrosal (16) or ear-capsule, with the otolite, 16″; the Sclerotal (17) or eye-capsule; the Turbinal (19) or nose-capsule; the Branchial arches (45–49); the Teeth.

"The bones of the Dermoskeleton are—the Supratemporals (74); the Postorbitals (72); the Superorbitals (71); the Suborbitals (73); the Labials (75), and others which will be pointed out in certain ganoid fishes.

"Such appears to be the natural classification of the parts which constitute the complex skull of Osseous fishes."

"The bones of the head being in completest number, departing least from the vertebral pattern, and susceptible of the most intelligible definition in the class of Fishes, afford the best basis for determining their homologies, and fixing their nomenclature in the higher vertebrate series."

The chief masses of the muscular system in ordinary osseous fishes are disposed on each side of the trunk in a series of vertical flakes or segments, corresponding in number with the vertebræ. Each lateral flake (myocomma) is attached by its inner border to the osseous and fibrous parts of the corresponding vertically extended segment of the endoskeleton; by its outer border to the skin; by its fore and hind surfaces to an aponeurotic septum, common to it and the continuous flakes. In the sharks, the margins of the middle portions of the myocommas form, instead of a curve, an angle, with

the apex turned forward; and in the rays, the dorsal portions become insulated from the middle ones, and metamorphosed into a continuous longitudinal muscle. In fish like batrachia, and in ophidia the portions before the lateral line become grouped into three longitudinal muscles; the chief bulk of the tissue is arranged in transverse segments, but the progress of massing into longitudinal groups is greater than in the sharks; and this is still better seen in the higher reptiles.

The chapter on the nervous system is very excellent. The Encephalon is divided into four primary segments—the *epencephalon*, consisting of the medulla oblongata and cerebellum; and this is, relatively, the largest in fishes. The presence of the "vagal lobes" and nodulus being characteristic of fishes, they also have no lateral lobes in their cerebellum, and no "pons." The *mesencephalon* consists of two "optic lobes," and of the "hypoaria." The *prosencephalon* consists of two small masses, usually solid and in close contact with the optic lobes, these in some Plagiostoms have a ventricular fissure and a choroid plexus, and are homologous with the cerebral lobes of mammals. The *rhinencephalon*, consists of the olfactory lobes. In reptiles, the prosencephalon is larger than in fish, and the cerebral lobes are better marked.

The dental tissues are treated of along with the digestive system. A tooth is defined as a hard body attached to the mouth or commencement of the alimentary canal, partially exposed when developed. Calcified teeth are peculiar to the vertebrates, and may be defined as bodies prominently, if not permanently, distinct from the skeleton, consisting of a cellular and tubular basis of animal matter, containing earthy particles, a fluid and a vascular pulp. Both in regard to their number, form, substance, structure, situation, and mode of attachment, fish offer a greater series of varieties in their teeth than do any other vertebrates. Thus they vary in number from zero to countless quantities; from being of the shape of three, four, or six-sided prisms, until they even resemble in appearance the canine teeth of carnivores. In reptiles many are edentulous; many have simple teeth; but they never are so many or so few in number as in fishes, nor are they ever developed in the median line of the mouth. Specialized teeth, or poison fangs, occur among the ophidia; and among some extinct orders of batrachia and reptiles some most extraordinary modifications of teeth are met with.

The abdominal cavity in fishes occupies a smaller proportion of

the trunk than in reptiles; and in them the alimentary canal is usually short, simple, but capacious. The stomach is either "siphonal" or "cœcal;" and with a few exceptions, the intestines are divided into "small" and "large." In reptiles, the cavity which contains in fishes the alimentary canal, contains also the heart and lungs. In them the tongue is also developed both as an organ for prehension and taste. The œsophagus is short and wide in batrachia, long and wide in ophidia; of moderate length and width in chelonia; narrower in crocodilia; and still more so in the insectivorous lacertilia. In the ophidia and bactrachia the stomach is simple; it is more complicated among the chelonia; and in the crocodilia we find the most complex stomach among the reptiles.

The blood-discs in fishes are commonly of a full elliptic shape, but are sometimes circular: they present the largest size in the sharks. There is only one fish, the Amphioxus, in which a branchial heart is not developed as a compact and predominant muscular organ of circulation; while in the Lepidosiren we meet with the highest organized heart in this class. The different forms of gills and supplemental breathing organs are described in detail. Under all its diversities of structure and function the homology of the swim-bladder with the lungs is clearly traceable, and in those orders of fishes which lead more directly to the reptiliæ, as for example, the Salamandroid, Ganoidei, and Protopteri, such further modifications are superinduced upon the air-bladder, as to make it become analogous in function to the lungs of air-breathing Amphibia. In reptiles the blood has red corpuscles of a flattened (not bi-convex) elliptical shape, smallest in Ophidia, roundest in Chelonia, and largest in Batrachia. The blood of the Ophidia is the richest in solid constituents of all the cold-blooded vertebrates. In the reptiles the heart rapidly advances towards perfection, until in the crocodile it needs only to obliterate the left aorta to appropriate the right ventricle exclusively to the service of the pulmonary artery, and the left one to the aorta, to convert the heart into that of a bird.

In fishes the "corpora Wolffiana" remain persistent, and are called kidneys. In the air-breathing vertebrates they are transitory. In reptiles the kidneys are always a distinct pair; but, as in fishes, the renal tissue is uniform.

The tegumentary organs of vertebrates, where they do not happen, as in exceptional instances or parts of the body, to blend with the periosteum of the endoskeleton, are defined from subjacent structures by loose or yielding connective tissue; hence the facility with which vertebrates of all classes can be "skinned," the part so

removed is the "tegument," and constitutes the outermost of the organs differentiated in the course of development from the serous layer of the plastoderm. Bulbs of hair and feathers, horny scales, and fish scales—setaceous, sudoriparous, and mucous follicles—may be developed in and from the derm: the epiderm may be condensed into nails, claws, hoofs, horns, and horny scales.

The first volume concludes with an account of the organs of generation of the Hœmatocrya, and of their development.

The first twelve chapters of the second volume are devoted to an account of the birds; and the latter two to an account of the character and primary groups of the mammalia, and of their osseous system. These two classes constitute, as we have seen, Professor Owen's group of hæmatotherma, or warm-blooded vertebrates. Save in the case of the cetacea and of human beings, this group may be at once recognized by the non-conducting and heat-preserving nature of its clothing; which is "hair," as a general rule, in mammals, and "feathers" in birds.

Birds, Professor Owen remarks, form the best characterized, most distinct, and natural class in the whole animal kingdom—perhaps even in organic nature. They present a constancy in their mode of generation, and in their tegumentary covering, which is not met with in any other of the vertebrate classes. No species of birds ever deviates, like the whale among mammals, the serpents among reptiles, and the eels among fishes, from the tetrapodous type characterizing the vertebrate division of animals.

The division of the birds into orders is the most unsatisfactory portion of this volume. With every wish to know the views of the author, we are yet unable to decide whether he intends to omit the order, Cursores, and to place the Struthious birds with the bustards, or to constitute it as an eighth order, to come after that of the Raptores. The fifth order, called Volitores, is apparently the same as Mr. Wallace's Fissirostres, containing even such abnormal families as those of the Bucerotidæ and Trochilidæ, whereas the humming birds are referred to the Passeres, at p. 150; indeed, we should say, it was evidently copied from Mr. Wallace; and yet the swallows are ejected, we cannot guess why, from the order, and placed as a family among the Cantores (Passeres). This, at any rate, is against the spirit of Mr. Wallace's paper. The uncertainty of this portion of the volume does not, however, vitiate the more exclusively anatomical portions. The osseous system is treated of in most detail. In birds the skeleton is remarkable for the rapidity of its ossification, and the light and elegant mechanism displayed in the

adaptation of its several parts. The osseous system is compact, and exhibits more of the laminated, and less of the fibrous, disposition than in the other vertebrate classes. This is more especially the case in those parts of the skeleton which are permeated by the air. The bones which present this singular modification have a greater proportion of the phosphate of lime in their composition than is found in the osseous system of the mammalia, and they are whiter than the bones of any other animal. Anchylosis so fetters the vertebral column that from no part can a single segment, with all the elements, be detatched without using the saw. The skull includes four; the sacrum a greater number of vertebræ, of more or less of which the hemal portions alone retain freedom. The remaining segments may be classified as "cervical," "dorsal," and "caudal;" in the first and last the pleuropophysis, if present, is confluent with the neural arch; in the dorsal series, the pleuropophysis and hemapophysis are flexibly articulated; but the hemal spines are connected, and represented by a single bony plate.

The muscular system of birds is remarkable for the distribution and density of the fasciculi; the deep red colour of those chiefly employed in vigorous action, and their marked separation from the tendons, which are of a pearly shining colour, and have a peculiar tendency to ossification. The elementary fibres are much smaller, and less sharply angular than in reptiles; the blood-vessels being more abundant, and occupying more space in their intervals. The central nervous system in the bird differs from that of the reptile in the superior size of the cerebrum and cerebellum, together with the folding of the latter, which relates probably to the higher locomotive powers of the bird. From the mammal brain it differs in the absence or small beginning of the fornix, and of the lateral lobes of the cerebellum; and from that of every other class in the lateral and inferior position of the optic lobes.

The digestive system is considered under the head of the rostrum, or beak, the tongue, the œsophagus, the stomach, which is always divided into a glandular and muscular portion; the intestines, and the cloaca. With these are connected the salivary glands, the proventricular follicles, the liver, and pancreas. Space will not permit us to dwell, even in a cursory way, on any of these interesting subjects. The liver would appear to be relatively largest in the less active aquatic and land birds; smallest in those that fly best and breathe most. Compared in the limits of the class, the liver would seem to be developed inversely, as the lungs and their appendages;

and, so far as it is associated with the lungs in eliminating waste elements from the blood, to have less to do in that way, as the breathing organs perform most.

The absorbents of birds have fewer valves than those of mammals. The lymph resembles that of the mammalia; but the chyle differs in its transparency, and want of colour. The absorbents would appear only to correspond to the deep-seated absorbents in the higher animals. Lymphatic glands are few in birds. The absorbents terminate principally by two thoracic ducts, which enter the right and left jugular veins by several orifices.

The blood is hot, and of a deep red colour. The heart, which is always cone-shaped, is situated more anteriorly and mesially than in the mammalia. The right auricle is much larger than the left; and the right ventricle is remarkable for the smoothness and evenness of its inner surface. In the details of the vascular system, Professor Owen adopts, with very little modification, the description of Macartney, by whom it was first and best described. It may be well to mention that the accuracy of Macartney's observations as to the strange anastomosis of the occipital with the vertebral artery in birds has been confirmed by Barkow,[a] who found it so in all the birds which he injected.

The organs subservient to respiration manifest more of the reptilian than of the mammalian type of formation. As in the tortoises the lungs are confined to the back part of the thoracic-abdominal cavity; being firmly attached to the ribs. As in the serpents, they communicate with large membranous cells, which extend into the abdomen, and serve as a reservoir of air. In the apteryx alone they do not penetrate the diaphragm. In such aquatic birds as are deprived of the power of flight, such as the penguin, the air receptacles are confined to the abdomen. The statement that in the Volitores, even in the hornbill, every bone of the skeleton is permeated by air, is, we fear, too general a one to be absolutely correct. In connexion with the respiratory system, the air passages in birds are described.

In the mature bird the urinary system consists of the kidneys, ureters, and a more or less incomplete urinary receptacle. Those in which this latter portion is most developed are the owls; many of the aquatic birds, as the pelican, swan, gull, &c.; some of the

[a] Untersuchungen über das Schlagadersystem der Vögel. Meckel's Archiv für Physiologie, 1828, p. 305, et seq.

waders, as the bittern and bustard; but, most of all, the ostrich, among the Cursores.

Sebaceous follicles are not fully developed in birds. To those scattered over the integuments is due the peculiar odour of such birds as the Muscovy duck, black vulture, hoopoe, &c. The gland above the uropygium is probably an extra development of sebaceous glands, secreting an unctuous fluid for lubricating the bird's feathers, and is most developed in aquatic birds.

The tegumentary system of birds is treated of in some detail, and we may notice, in passing, that the only figure illustrating that "mechanical wonder," a feather, is one borrowed from a work nearly a century and a half old, the only difference being that Perrault calls his own figure "un morceau de la queue du tuyau d'une Plume vû avec le Microscope." The copy on page 234 of this volume is called a "diagrammatic section of the shaft and vane." We have often been puzzled over the figure, the counterpart of which we have looked for in vain in nature, and which as a diagram we equally fail to comprehend.

The last two chapters on birds treat of their generative system, and of their development.

The third and last volume will complete the comparative anatomy of the mammalia. We shall wait until its appearance to notice the last two chapters of the second volume. In the meanwhile we have shown the reader the great value and importance of this manual of comparative anatomy.

On Diseases of the Stomach, the Varieties of Dyspepsia, their Diagnosis and Treatment. By S. O. Habershon, M.D., Lond.; Fellow of the Royal College of Physicians; Physician to Guy's Hospital; Lecturer on Materia Medica and Therapeutics at Guy's, &c., &c. 1865.

The Causes and Treatment of Imperfect Digestion. By Arthur Leared, M.D., Dub. and Oxon.; M.R.I.A.; Member of the Royal College of Physicians, London; Senior Physician to the Great Northern Hospital, and Physician to the Royal Infirmary for Diseases of the Chest; late Lecturer on the Practice of Medicine. Fourth Edition. 1866.

The medical press of London has of late been very active in the production of new works on the disorders of the digestive system.

This prolific energy has apparently not been caused by any new and startling discoveries in the physiology of digestion, for we find no very recent physiology in the works before us; we must conclude, therefore, that other causes not difficult to determine have presided over the late literature of this subject. A thoroughly good treatise on the functional diseases of the stomach has been long wanted, both by the practitioner and the student; but in these days, when every malady must be referred to some organic change, when the very existence of functional disorders is assailed, the study of conditions so difficult to analyse as indigestion has not attracted the accurate inquiry which it deserves. Chemistry and the microscope have not yet entered this tract of pathology in sufficient force, and few are inclined to labour at a subject in which, relatively, so little scientific knowledge has been obtained. In our review of the two works before us we shall have to consider how far they satisfy the want we have spoken of, but as one of them comes to us with the authority of a "fourth edition," its consideration will necessarily occupy a more limited share of our space.

In his preface Dr. Habershon alludes to his former work, entitled, *Pathological and Practical Observations on Diseases of the Abdomen*, and tells us that his own experience, without these pathological observations, is contained in the present volume. The work is intended to be a practical one. In the introduction which precedes the eighteen chapters into which the book is divided, our author makes his attempt to classify the various forms of the disease on which he writes. The classification of the forms of a malady so protean as dyspepsia, and of which we have at best but a very imperfect knowledge, is a most arduous task, and one, in the present state of physiology and physiological chemistry, not to be satisfactorily accomplished. In the *Diseases of the Abdomen* the affections of the stomach were arranged on an anatomical (or, as it is called, physiological) basis, as follows:—"1st. The dyspepsia arising from disorder of the mucous membrane of the stomach and its secretion; 2nd. That arising from the muscular movements of the stomach being impeded; 3rd. From an abnormal state of the vascular supply; 4th. From changes in the condition of the nervous system; and, lastly, from improper diet, or from chemical decomposition taking place during the digestive process." Some little fault might be found with such a division, but it was by no means a bad one, and, in our opinion, very much to be preferred to the cumbrous arrangement in the volume under notice. We will take

Dr. Habershon's new classification; and in considering the various forms of dyspepsia spoken of therein, we shall analyse the greater part of the book, inasmuch as ten of the thirteen chapters are devoted to the consideration of the varieties mentioned.

First we have "Dyspepsia from weakness, whether from general imperfect nutrition and diseased vessels, or from exhaustion of the cerebro-spinal nervous system, or from failure of the nerve of organic life; atonic dyspepsia, as it might aptly be termed." On turning to the chapter devoted to the consideration of this form, we find that the dyspepsia spoken of as arising from diseased vessels in the above extract, is most probably due to atrophy of the gastric glands. "The impeded flow of blood from the atheromatous vessels," and "the want of energy in the glands," are alternately invoked; and we are finally left in a state of much doubt which of these two *hypothetical* conditions the writer is inclined to prefer.

The second sub-variety caused by "exhaustion of the cerebro-spinal nervous system" would seem to owe its position to the fact that mental shock occasionally stops or retards the digestive process. Would it not have been better to have enumerated these mental influences as sources of digestive trouble rather than to have given them a special form of indigestion to themselves? On this head we are treated with the remarkable statements which follow:—

"It will often be found that, whilst others may have forgotten some event which for the time produced universal sympathy, the effects are long seen by the physician, upon those immediately concerned; years may elapse, and the effect on the physical organism may still persist, and it is frequently found that a functional disturbance thus produced, is followed by organic change; this dyspepsia at first may be only functional, but it slowly gives place to the signs of cancerous disease of the stomach or liver; thus it was with the great Napoleon at St. Helena, and thus it has been with very many who have come under our own observation."—P. 121.

The above contribution to the etiology of cancer will, no doubt, be valued by those who are now so earnestly working at the pathology of malignant tumours. The third form of atonic dyspepsia is referred to "exhaustion of the nerve of organic life," and includes some varieties, often called sympathetic, and frequently met with in young people about the age of puberty.

Secondly, we have, "Dyspepsia from congestion, as observed in chronic disease of the lungs, heart, and bronchi, and also in chronic

disease of the liver." The consideration of these forms of secondary stomach disorders would, with more justice, find a place in a treatise devoted to the diseases of the special organs primarily affected. The practical nature of the present volume cannot justify their appearance here, for their treatment is of necessity so intimately connected with the therapeutics of diseases of the chest and liver that no brief account, in a work like the present, can be of much value. We think it a pity, moreover, to speak of them as forms of a malady on which too many practitioners have but vague notions; the confusion which must result in the use of terms will far outweigh any possible good. If functional affections of the stomach are ever to admit of scientific treatment, and if the term dyspepsia is ever to mean anything but a confused grouping of symptoms, we must begin at once to limit its application. The way of improvement will only be found in the plan of excluding all conditions which can be referred to organic change in the stomach or elsewhere.

Thirdly—"Inflammatory dyspepsia, whether arising from irritants, excesses, or improper diet." The chapter on this variety opens with some brief remarks on the secretion and action of the gastric juice; and further on we are told that inflammatory changes following the action of corrosive fluids are not included under this head. Idiopathic inflammation is alone meant. Considering the doubt that has from time to time existed concerning the occurrence of any such condition, we must question the advisability of the nomenclature. Accidental dyspepsia, the term used by the French authors, would have been much better. Three indications are spoken of as the chief signs of this form of dyspepsia; they are "tenderness at the scrobiculus cordis; irritability of the stomach and a desire for cold drinks" (p. 144), a group of symptoms which is met with in many cases where we have no right to assume the existence of inflammation. Dr. Habershon speaks of three sub-varieties of inflammatory dyspepsia, the first occurring in young children after unsuitable food; the second, arising from some accidental indiscretion in diet, or intemperance, is met with in adults; and the third results from the continued use of too copious or too rich a diet. The two first forms would certainly be better called *accidental;* while the third appears, from the description given at p. 149, to have little claim to the title *inflammatory*, but bears a striking resemblance to what our author calls, further on, hepatic dyspepsia of the chronic kind. We also find an acute form of

hepatic dyspepsia described, which, we think, has no just claim to a separate description.

Passing over the next chapter on "Rheumatic and Gouty Dyspepsia," we come to "Renal Dyspepsia," of which two kinds are mentioned—the one referable to the passage of a renal calculus, and the other to the uremia of Bright's disease. We need not dwell on the claims of these two forms to a prominent position in the classification in the functional diseases of the stomach; the first should certainly be classed as a sympathetic disorder, and the second has no claim to special consideration in a work on gastric diseases.

We find the seventh variety is called "Mechanical Dyspepsia;" but the account given of the various conditions interfering with the movements of the stomach is too meagre to be useful. A very instructive chapter might have been written on this subject, but we are sorry to have to say that the author has disappointed us. Under the head of "Nervous or Sympathetic Dyspepsia," we find the repetition of much that has been said in the preceding chapters, and we notice little addition to our previous knowledge. In speaking of the sympathetic disorder of the stomach which often precedes and accompanies phthisis, our author endeavours to throw discredit on recent views concerning the relation of the two conditions as antecedent and consequent. We give the passage, that our readers may judge of the force of Dr. Habershon's argument:—

"It may be argued by some, that the gastric altogether precedes the pulmonary mischief, and that in the weakness from the impaired power of digestion we have the cause of the low organized deposit in the cell structure of the lungs. If such were the case, the gastric disease would continue at least *pari passû* with that in the lung, and be detected after death; whereas we never find tubercular deposit or strumous ulceration in the stomach, and the utmost that can be noticed is the fatty degeneration or atrophy occasionally found in phthisical patients, although not exclusively in them."—P. 181-182.

"Fermentative Dyspepsia" next engages our attention; and in connexion with the development of gas in the intestinal tract we find a belief expressed in a view long since generally abandoned—the transudation of gases from the blood as one of the causes of flatulence. We are told that this view "is confirmed by the character of the gas itself, as consisting especially of nitrogen and carbonic acid gases, which are always present in venous blood."

This view is, indeed, more than doubtful; and we must remind our author that there is much more nitrogen in arterial than venous blood, as proved by Sczelkow, and that the researches of Ruge distinctly point to the derivation of nitrogen from the use of flesh as food. The development of CO_2 from starch and sugar is so obvious that it is scarcely necessary to seek its origin in the blood. If, however, our author simply means that gases in the stomach and gases in the blood may mutually interchange by osmosis, some support might be given to his views, but the composition of the gases found in the intestines does not require us to go to the blood to account for their occurrence.

The great source of flatulency is undoubtedly to be found in the fermentative changes which the food undergoes in consequence of modifications in the action of the intestinal juices. The practical proof of this is to be found in the striking results which follow, even in very bad cases, the limitation of the amount of starchy and saccharine food. We have seen some of the worst cases placed in comparative comfort when fed on albuminous diet and Blatchley's bran biscuits. In speaking of the treatment of that form of fermentation associated with the sarcina ventriculi, we notice the omission of a remedy—the tr. ferri perchloridi—which we have often found efficacious when all the ordinary remedies have failed.

Lastly, we have "Duodenal Dyspepsia," of which two kinds are mentioned—"the one arising from excessive irritability of the mucous membrane, the second from inflammatory congestion." Intestinal dyspepsia is too often ignored in our books and overlooked in practice. On this account our author's remarks may do much good by directing attention to the subject; we could wish, however, that a fuller account had been given.

The remaining chapters treat of *degeneration*, *ulceration*, and *cancerous disease* of the stomach. Perforating ulcers are divided into two classes:—1. Those "perforating without adhesion;" and, 2. Those "perforating when adhesions have taken place." This division is very unscientific, and we cannot think it useful, as it separates essentially similar pathological conditions on account of an accidental complication. Surely it would have been better to have avoided any classification here, and simply to have enumerated the situations of those ulcers which usually form adhesions.

There are other chapters—"On the Changes of Digestion at different Periods and Conditions of Life;" "On the General Sympathy of the Stomach in Disease;" "On the Symptoms of Disease

of the Stomach;" "On the General Treatment of Disease of the Stomach;" and "On the Remedies for Indigestion and their Abuse." We have no time or inclination to analyse these, but we have looked in vain for any new information. In a professedly practical work the portions relating to treatment ought to be the most valuable and the most exhaustive. We cannot say, however, that the work before us contains much matter, even on this point, to repay the reader for his trouble. The portions devoted to the treatment of the various disorders described, are not by any means complete as they might be. The directions given are often vague and unsatisfactory; scarcely any knotty point is settled for us, and no useful formulas are to be found by the busy practitioner. Throughout we find marks of haste, bad management of the subjects, and a great want of precise knowledge. The style, too, is often careless, and in places really bad; the frequent changes from the first person plural to the responsible "I" in succeeding sentences, tells us how hurriedly the work has been written. The author has not given any of the many cases on which his views are based. In this, we think, he has made a great mistake, as the value of any work which aims at being practical is always enhanced by the addition of cases which necessarily contain the most practical kind of information.

Dr. Leared's little book has already passed through so many editions that it must be well known to the majority of our readers. It is not an ambitious volume, but it is a useful one, and full of much information, told in a pleasant manner. After its perusal the need of some more solid intellectual food, the craving for some more positive knowledge may be felt, and stimulate the reader to seek it in some of the more elaborate works on this subject, such as those of the late Dr. Brinton, or the exhaustive treatises of the French school. Dr. Leared tells us that he has given much thought to his classification of the various forms of indigestion, and we can say of it that it is one of the best we know. It may be less complete than that of Guipon, but is more simple—no mean recommendation. Dyspepsia is divided, primarily, into accidental and habitual—the former including dyspepsia from excess of food; dyspepsia from too great variety of food; and lastly, that form of gastric trouble produced by constitutional peculiarities. The forms of habitual indigestion are slow digestion, acid dyspepsia, painful indigestion, and the varieties characterized by fetid eructations and mental disturbance.

The author's remarks on treatment will be found useful, especially the chapters on the hygienic and the dietetic measures suitable for the several varieties of what is too often an intractable malady. There are two appendices well worth reading, the first on "Experiments on the Cause of Heartburn;" and the second on "Flatulence and its Successful Treatment by a Novel Use of Charcoal." Dr. Leared deserves much credit for the introduction of the charcoal capsules, and we can bear testimony in their favour. This appendix is the chief addition in this new issue, and we regard it as not the least valuable part of the work. We are glad to find that the chapter on the physiology of digestion has been removed to the end of the book in this edition—a step which we hope is only preliminary to its final exit. The plate of the digestive tube, which disfigured the former editions by its obtrusive position, has now been withdrawn to greater privacy. This also we consider as matter for congratulation. The book is well got up, and creditable alike to the author and the publisher.

A Treatise on Military Surgery and Hygiene. By FRANK HASTINGS HAMILTON, M.D., late Lieutenant-Colonel; Medical Inspector, U.S.A., &c., &c. New York: Baillière Bros., 520, Broadway. London: H. Baillière, Regent-street. 1865.

THE introductory chapter of this work, on the peculiar duties of military surgeons, and the position which they ought to occupy, shows that on these points the surgeons of the United States Army, as of our own, have much difficulty in obtaining a just and liberal recognition of the degree of rank and amount of authority absolutely necessary to enable them to perform efficiently the various and important duties of their office.

Dr. Hamilton argues strongly, yet calmly, on the side of the military medical officers. He first vindicates their claim to equal rank with military executive or combatant officers, with whom they share all the hardships and many of the risks to life and limb in active service, with a supplement of labours and risks peculiarly their own, on the field and in hospitals, during intervals of marches and engagements, passed in comparative repose by their combatant brethren.

The time is at hand when such arguments will be no longer necessary, but until its advent they must be repeated and enforced

again and again by all who desire to see the military and naval medical services of this country established on a proper footing, decreed by the voice of the nation through Act of Parliament, and thereby secured against the insidious inroads of Horse Guards' Circulars, supplementing and modifying warrants to which the Royal sign manual has been found to be an insufficient protection.

In order to contribute our portion towards the furtherance of this desirable object, we make the following extract from Dr. Hamilton's work, with which we heartily agree:—

"The only remaining point to which we wish to call attention at this time is the amount of *authority* vested in the medical officers of the army, with a view to the consideration of the question whether it is sufficient for the purposes intended; and we may say at once that it is the almost unanimous opinion of the army surgeons, that it is not sufficient unless the medical officers have complete control of the medical department in the same manner, and to the same extent that the officers of the corps of engineers control their department. In this opinion the writer fully concurs.

"The objections to conferring authority upon medical officers are the same which have been urged against medical rank; and, in addition to these, it has been claimed that to divide or distribute authority is to destroy the unity and power of the army, and that it is essentially destructive of all military discipline. The first of these objections has already been sufficiently considered, and the second is very well disposed of by Dr. Tripler in a few words:—'The dogma of the necessary alternate of commanding, or being commanded that has been the fruitful source of so many mischiefs, and is at the root of the difficulty of securing the efficient co-operation of the different professions that are now combined in the organization of the army, has had its practical refutation demonstrated in our service by the experience of almost half a century. The law forbids the exercise of command out of their corps to the officers of the engineers. Still they are not subject to the orders of their juniors in the line. They cannot command, nor are they commanded except by a superior; and what has been the result of this assumed military heresy? Let the world produce their superiors as an efficient and scientific corps! Their independence of all outside interference, and their being exclusively entrusted with the means of performing their own duties, have made them what they are, and the country has reaped the advantages of its wise legislation in regard to them. This is the only corps in the army that has any analogy with the medical as regards scientific acquirement, specialty of function, peculiarity of administration, and claims to inde-

pendence of action, because it is not at all understood or comprehended by any other department.'[a]

"We conclude then that to the medical officers ought to be intrusted the complete control of the medical department, because upon the preservation of the health of the troops depends in a great measure the success of every expedition; because no others than medical men are by their education and habits qualified to perform this duty; because no one else is competent to decide upon the proper location of a hospital, its construction, ventilation, or general arrangement; no one else can determine what is necessary for the sick in the way of diet, clothing, medicines, &c.; no one else knows when rooms are overcrowded, and are in danger of becoming pestilential, or when patients can be removed with safety. In short, because officers of the executive department, from the entirely distinct nature of their pursuits, whatever they may believe to the contrary, do actually know as little of hygiene, medicine, and surgery as they do of engineering. Because, moreover, medical men are supposed to be qualified, they are appointed for the express purpose; and because without authority, they are unable to carry out their own views, and it is impossible, therefore, that the public service can receive the full benefit of their ability."

Dr. Hamilton enforces his claims for the authority of military surgeons by contrasting the modes of administration of the medical departments in the French and British armies in the Crimea, and the results, we are happy to say, are in favour of the British system, the practical working of which admits—by sufferance, as it were—of the exercise of a considerable amount of authority in minor matters on the part of medical officers, but very different from the independent system of administration of the engineer department as established by usage and secured by authority.

Alluding to the system of military hospitals being placed under a military governor in immediate command, Dr. Hamilton says:—

"In our experience this has happened but once, and then its inconveniences were soon observed, and the officer of the line was promptly relieved."

So far as this goes, American military surgeons are in advance of their brethren in the British service, but in other points they are in an inferior position, as Dr. Hamilton states that the military surgeon is—

[a] Amer. Med. Gazette. Introduc. Lect. on Mil. Surgery. By Charles S. Tripler, M.D., Surgeon U.S.A., 1848.

"Not allowed to retain a soldier, whatever may be his condition, against the order of his superior officer of the line. A recent decision of a court-martial has settled this question definitively; one of the most valuable and highly accomplished officers of the U. S. Army having been sentenced to several months' confinement to his post for refusing to permit a wounded soldier, upon whom a severe surgical operation had been made a few days before, and who still remained in a critical condition, to be removed under an order for his arrest, until the order had received the approval of the surgeon-general, or of his immediate representative, the medical director of the department.

"We are at a loss to conceive the propriety of the rule as decided by the court to which we have referred; nor do we think that any one can seriously claim for it either necessity, justice, or humanity."

Chapter III., on the general hygiene of troops, contains much useful information, and many valuable hints, illustrated by striking examples, particularly on the necessity of a proper supply of vegetables, and on the important indications as to the general health of the troops, afforded by the occurrence of even one case of scurvy:—

"To those who are not familiar with the numerous and complicated duties which devolve upon officers commanding large armies, it may seem a matter of surprise that such facts as we have stated do not come to their knowledge, and that the remedies are not promptly applied; but the truth is, that whatever information they possess must be obtained from subordinate officers, and, with the exception of the medical officers, there are very few of these subordinate officers who understand what are the usual results of abstinence from vegetable food. Officers in the immediate command of regiments and of companies often, when the inquiry is directly made, acknowledge their want of supplies; but they have seldom evinced much interest in the matter. So long as men are not dying in considerable numbers directly from scurvy, they manifest no alarm, for they have never been made to understand that, to some extent, all men must be scorbutic who have been excluded such a length of time from vegetables; that the rheumatic pains, the bloody discharges from the bowels, the tender gums, the short breath, irregular action of the heart, the obstinate ophthalmia, the sudden deaths of patients suffering under diarrhea, the speedy exhaustion of men in the trenches and on the march, were all the results of impoverished blood; that the frequency, rapidity, and fatality of typhoid pneumonia were due, in a great measure, to the same cause; that men who were slightly scorbutic often presented an appearance of robust health, especially when their bloated features were bronzed by exposure to the sun and air. Even the surgeons are

not always fully awake to the danger which is upon them when *one* well-marked case of scorbutus is brought to their notice. It is not often we find more than five or ten striking examples of scurvy in one regiment at a time; but if there is but one it ought to furnish a substantial ground of suspicion that the physical condition of the whole, or nearly the whole, of the command is impaired."

At one time, while the army of the Cumberland was suffering from want of potatoes—

"The medical director, Surgeon Perin, found, at Murfreesboro, 1,500 barrels lying in the commissary store rooms, not one barrel of which, we believe, had any ventilation, and the contents of most of which, when we came to open them, were more or less destroyed. They were awaiting an order from the commanding general to issue them, but the Commissary had failed to notify the general that they were on hand. The medical director, Dr. Perin, promptly informed the general, and an order was at once obtained for their issue.

"Such facts as these do not always indicate inefficiency, perhaps, on the part of the government officers, but rather that the multiplicity of their duties renders it difficult, if not impossible, sometimes to give the necessary attention to all the minor details."

Even such an emergency as that above detailed did not confer upon the medical director any authorized right to order the immediate issue of supplies so essential to the health of the troops, and actually rotting in store while awaiting notification of their existence from the commissary to the general, but he had first to inform the general, who then issued the necessary order. Dr. Hamilton assigns such an occurrence to its probably true cause—viz., "the multiplicity of duties of commanding officers," and in doing so he adds another powerful argument for conferring upon medical officers rank and authority qualifying them to undertake their share of duties and responsibilities, and so relieve the military authorities of the multiplicity of duties which "renders it difficult, if not impossible to give the necessary attention to all the minor details."

Dr. Hamilton's observations in Section II. of this chapter on "Cleanliness and Camp Police" are forcible and instructive.

In Chapter IV. he describes "Bivouac Accommodation of Troops in Tents, Barracks, Billets, Huts, &c."

Chapter V., on hospitals, contains much interesting and useful information, with ground plans and bird's-eye sketches of some of the immense hospitals which were established during the late American

war. He advocates the system of one-storied pavilions elevated three or four feet from the ground, for the following reasons:—

"1st. They are more easily ventilated, and this consideration takes precedence of all others. Its importance can never be over-estimated. The best place to treat a sick or wounded man is always, other things being equal, where he can get the most and purest air. When this doctrine is thoroughly understood, hospitals will cease to be the graves of soldiers, and never until then.

"2nd. They are much more easy of administration.

"3rd. Such of the patients as are able to walk can pass in and out with less fatigue. In lofty buildings feeble patients, and those who are lame, are, in many cases, as effectually excluded from out-door exercise as if they were bed-ridden."

"The ward (he says) should be of an oblong shape. The width should be twenty-five feet, which will allow seven feet six inches for each bed—the beds being nine inches from the wall—and eight and a-half feet for the passage way. The length must depend upon the number of beds it is intended to receive. In a permanent hospital each bed should be allowed an average of seven feet in the direction of the length of the ward. Fifty is the maximum of beds—twenty-five on each side. This number of beds would require, therefore, 175 feet. The height of the walls should be fourteen feet, and the roof high pitched. This will give 1,205 cubic feet of air to each patient, which is the minimum allowance for any ward intended for permanent use."

In such a ward it appears to us that the superficial space to each patient, viz., 87·5 feet, is deficient: and the amount of cubic accommodation, viz., 1,205 feet to each patient, exceeds, by five feet only, the minimum space allotted in the British medical regulations for permanent military hospitals in temperate climates—1,500 cubic feet being the allowance in tropical climates, and which, it occurs to us, would certainly be required during the Summer months at any rate of the American climate.

There is also given a ground plan for a ward of twenty beds (from Hammond), in which the position of the bath-rooms and water closets, opening off a passage or verandah at one end, although not directly communicating with the ward, appears to us to be very objectionable; such apartments ought invariably to be separate from the wards, but connected with them by a covered way.

In the M'Dougall General Hospital, at Fort Schuyler, N. S., for 1,660 patients, the pavilions are arranged tangential to an oblong

corridor, which is furnished with a railway, by which the food, medicines, &c., are conveyed. Each ward contains 48 beds, except those at the end near the kitchen, which are but two-thirds the size of the others.

"The administrative buildings are at one end, and the kitchen, laundry, &c., at the opposite. The interior contains a chapel, operating room—connected with the wards by railway—a guard-house, and a fountain. Water-closets and bath-rooms are attached to each pavilion at their further extremities, and entirely outside."

The site—

"Is upon a narrow peninsula, projecting from the main land into the East River, which, at high tide, is completely surrounded by salt water. This hospital was planned and organized by Assistant-Surgeon Robert Bartholomew, U.S.A., and is now under the excellent management of Warren Webster, Assistant-Surgeon, U.S.A. In point of location, M'Dougall General Hospital cannot be excelled; and in respect to its interior arrangements, we have not seen it surpassed by any hospital in the United States.

"The Mower United States General Hospital, at Chestnut Hill, near Philadelphia, is composed of fifty pavilions, projecting from a corridor of a flattened ellipsoidal form. It is said to be 'the largest institution in the world devoted to the reception of the sick and wounded alone,' containing 2,820 beds for patients, and 500 for officers and attendants.

"The Lincoln Hospital at Washington, with several others in different parts of the United States, has a corridor in the form of the letter V, the pavilions being placed tangential to the corridor upon its outside, *en échelon*. The administrative building is at the apex, and the kitchen, laundry, &c., are in the centre of the inclosure."

In some of the hospitals which he describes—for instance, the Hammond General Hospital—"the kitchen, laundry, and dead-house are in the centre of the circular area," an arrangement to which there appear many obvious objections.

He considers large well-made hospital tents to be the best military hospitals for general use. He mentions the various kinds of buildings, public and private, which were seized upon and employed as temporary hospitals.

"At one time the order was issued to occupy the President's mansion, which order would have been promptly obeyed and cheerfully acceded to by the President had it not seemed to be unnecessary, and had not the order been countermanded on the same day."

He says that except in cases of pressing necessity it is certain that, in a sanitary point of view, it would be better if such buildings were never used at all.

"Men taken into those hospitals with diarrhea, or some other simple ailment, have often been attacked with fever; patients recovering from fever have died of erysipelas; wounds which were nearly healed have suddenly been invaded by erysipelas or hospital gangrene, or pyemia has supervened. In short, there is in most of these buildings a long file of terrible maladies which are born of impure air, and through which all who pass out of their doors must run; and fortunate, indeed, is the man who, having once entered, escapes with his life."

In describing tents for hospital purposes, and advocating their more general use, he says:—

"One single fact which we shall state ought to settle for ever the value of tents for hospital purposes. While we have seen many hundreds of cases of hospital gangrene which have originated in buildings temporarily occupied, in transports, &c., even in well constructed pavilions, we have never seen a case which originated in a tent, nor can we call to mind a case which was not at once benefited, if not speedily cured, by a transfer to a tent. Upon this point the testimony of all army surgeons with whom we have conversed is the same."

From Chapter VI., on "Preparations for the Field," we extract the following passage for the envious admiration of military surgeons in the British service; and let us hope also for imitation, at no very remote time, by our own Government:—

"In the United States army each regimental surgeon is supplied by the Government with one general operating case, including instruments for trephining and amputating, and one pocket case. Surgeons in charge of general hospitals are allowed additional sets of instruments, which may generally be obtained upon requisition."

In our army surgeons must provide capital cases of instruments, "their own property," at an expense of about £25; and assistant-surgeons must provide their own pocket cases!

Chapter VIII., on the conveyance of sick and wounded soldiers, is chiefly interesting from containing plans and sections of the "railroad ambulances" used with most advantageous results during the late American war.

Having devoted so much space and time to the introductory

matter of this work, the less remains for the purely practical part; this, however, is of the less consequence, as the work does not contain much that is actually new on surgical matters. There are many valuable hints scattered through it on the various forms of appliances found useful in treatment of the injuries received in war, illustrated by woodcuts and a short account of particular cases, which, besides their own intrinsic value as cases, possess the advantage of being highly suggestive to surgeons either in the military service or in country districts remote from metropolitan means and appliances, as showing how much can be effected by the ingenious and judicious application of means which, at first sight, may appear "rough and ready," but are so much the more suitable to the emergencies of the case.

The author devotes several pages to the treatment of gun-shot wounds by irrigation with cool or tepid water, the temperature being graduated from tepid to cold, according to the intensity of inflammatory action, care being taken that the temperature be that which is most agreeable and soothing to the patient—this being the true index as to whether the treatment is salutary or otherwise; he cautions against the too prolonged use of very cold water, and enforces his precepts by quotations from a *Treatise on the Employment of Water in Surgery*, by M. Alphonso Amussat, of Paris, published in 1851, and translated into English by Dr. Hamilton in the same year. We extract one paragraph:—

"'It is well known,' says Sansom, 'that cold applications may cease to be useful, and may even become hurtful, by rendering the flesh œdematous and pale, and causing it to become irritable when suppuration is established in the wounds. Sometimes, also, they entirely prevent the development of inflammation to such a degree as that at the end of ten or fifteen days the wound is nearly in the same condition as at the moment of the accident.'"

The chapter on gun-shot wounds of the abdomen is particularly interesting from the number of remarkable cases of recovery from such injuries contained in it. Of recovery from gun-shot wounds in the inguinal region, which his experience shows to be the least dangerous position for such injuries, he says:—

"Indeed so frequently do the viscera escape injury, when the ball has passed through the inguinal regions, we cannot but conclude that in very many of the examples the missile has made its trajet below and outside of the reflections of the peritoneum."

Wounds of the hypochondriac regions furnish the greatest number of fatal results, on account of the more fixed nature of the viscera contained therein.

"In the remaining regions the serious internal lesions and the fatality of the wounds may be arranged upon a descending scale in nearly the following order:—Epigastric region, umbilical, right and left lumbar, hypogastric, right and left inguinal."

Gun-shot injuries of the spine are alluded to in this chapter, but only as regards their possible connexion with wounds of the abdomen from the transverse and oblique processes being driven into the abdominal cavity.

"But it is seldom that these fragments are driven fairly into the abdominal cavity. The numerous strong ligamentous and tendinous attachments which cover so completely nearly all the surfaces of both the bodies of the vertebræ and their processes, render their complete detachment very difficult if not impossible; while the depth of the muscular coverings upon their lateral and anterior surfaces still further protects the internal viscera from the projecting points of the displaced spicula. There does not exist, therefore, the same necessity for extracting these fragments as in some other cases which we shall mention.

"When the track of the wound is through the body of the vertebræ, in most cases the spinal marrow or its immediate coverings have been seriously injured, and surgical interference would prove worse than useless; or the large blood vessels lying in front have been lacerated, and death occurs as speedily as if the heart itself had been opened.

. . . . "In case, however, one of the transverse processes has been broken and sent inwards, although it is not likely to have penetrated the cavity of the abdomen—it yet may give rise to serious results by the formation of an abscess in the bellies of the psoas muscles, which abscess may eventually make its way along between their fibres towards the groin, or it may empty itself into the loose areolar tissue outside of the peritoneum. These results have occasionally happened, and it is worthy of consideration whether in such a case it may not be proper to attempt the removal of the broken process at an early moment. This operation will be rendered the less difficult from the fact that the fragment will probably not be beyond the reach of the forceps, and if it cannot be extracted, it may at least be in some manner replaced, so that its extremity shall no longer press upon and goad the muscular tissues. The danger of the operation will be the less, also, for the reason that the operation is not so likely here to penetrate the cavity of the peritoneum.

"If such an operation should be thought justifiable, the incision ought

to be made at a right angle with the axis of the body across the fibres of the lumbar muscles, and directly upon the transverse process, avoiding as much as possible the space between the adjacent processes in which situation are found the principal muscular branches of the lumbar arteries."

It will be observed that he pronounces surgical interference in case of gunshot injury of the spinal marrow or its immediate coverings to be "worse than useless." On this point, however, some of the military readers of this journal, keeping in mind the operations performed and recorded by Dr. Robert M'Donnel and Dr. Samuel Gordon of this city may be inclined to differ with him, and we hope that when occasion arises they may put the question to the proof.

The author opposes, and, we think, on just grounds, the recommendation of Lagouest, to make digital exploration for the purpose of ascertaining whether a ball has penetrated an intestine, but we have already made so many extracts, that we must leave our readers to study this chapter for themselves, and we can safely promise them both benefit and interest in doing so.

He narrates several cases of the spontaneous cure of artificial anus, consequent on gunshot and other perforating or penetrating wounds of the belly, and says:—

"Yet we must confess that experience has greatly modified our original views as to the urgency of the demand for surgical interference of any kind. It is our present opinion that the majority of these cases will get well spontaneously, and an inconsiderable proportion very speedily, if simply allowed to take their own course; and we believe, therefore, that in all cases, it is best to defer surgical interference for a period of several months at least."

On the subject of amputations of the lower extremity, he says:—"Amputation through the knee-joint is not particularly objectionable. Baudens says that his experience in the Crimea enables him to affirm that disarticulation of the knee ought always to be preferred to amputation of the thigh. Of eighty-six cases, brought together in the November No., 1852, of the *N. Y. Jour. Med.*, by Prof. Stephen Smith, forty-nine resulted in recovery, and thirty-seven died, giving forty-three per cent. as the ratio of mortality."

On this subject a recent short paper by Mr. Longmore, in *The British Medical Journal* of 5th January, 1867, shows that the official return of the United States army[a], "gives a per centage of

[a] Circular No. 6, Surgeon-General's Office, Washington, Nov. 1, page 47.

mortality in primary amputations at the knee-joint of only 34·9." Mr. Longmore adds:—"I have a very strong hope that in any future war amputation at the knee-joint will be performed more frequently by surgeons in our own army, with results at least as favourable as those recorded in the United States Army Reports."

The mode of operation advocated by Mr. Longmore is that devised by Mr. Carden, of Worcester, and strongly supported by Mr. Syme, in a short contribution to the *Edinburgh Medical Journal* for April, 1866. Mr. Syme says:—

Mr. Carden "made a semi-lunar incision in front from side to side, with its convexity nearly over the tuberosity of the tibia, and reflected the flap of skin thus formed, so as to expose the muscles above the patella where what remained of the limb was divided transversely. The popliteal artery, and any of the small branches that required ligature having been tied, the ample covering of integument was brought down to its place, when, being secured by sutures, it lay without any tendency to retraction, or requiring the restraint of bandages, while the dependent opening afforded a free vent for the discharge of matter. No trouble was experienced in the after treatment, and the stump proved eminently serviceable, since the skin over the bone, instead of becoming thinner, acquired additional thickness, so that the patient could rest upon it, just as they do after amputation at the ankle."

The author, at page 472, describes his method of amputation at the knee-joint by a circular incision, three or four inches below the knee, terminating behind by a vertical incision upwards, two or three inches in length, and then by traction and dissection the ligamentum patellæ is exposed and severed; the capsule, lateral ligaments and hamstrings are cut; the crucial ligaments divided—leaving nothing further to be severed but the posterior ligaments of the joint, and that small portion of structure in the popliteal space which contains the popliteal vessels.

"The surgeon will now seize these tissues between his thumb and fore finger, and divide them a little lower down.

"In some cases, in operating by this method, we do not think it necessary to employ a tourniquet.

"In case the flap is not found to be sufficient, the patella may be removed to prevent retraction of the flaps through the action of the quadriceps femoris; or, more or less of the condyles of the femur may be sawed off. If the condyles are removed great care must be taken to tie the articular arteries above the joint, or a troublesome secondary hemorrhage may ensue."

Amputation at the hip-joint for gunshot injury was performed "five times during the present war, and perhaps oftener. In two instances the operation has been successful," in which the American surgeons were more fortunate than ours in the Crimea, where every case, twenty-three in number, terminated fatally.

In the chapter on exsections of joints, in describing the necessary instruments, he gives wood cuts of several, and among others of the saw which we in Ireland generally know as Butcher's saw, but which he designates as a "Symanowsky saw."

The chapter on anesthetics is worthy of study and consideration. The author is inclined to attribute certain serious consequences to their use, such as the less frequent healing by first intention, the greater frequency of pyemia, &c., &c. He quotes several authorities to the same effect, but admits, nevertheless, that he always uses them, and says that—

"The apparent inconsistency between our own theory and practice is explained by the fact that surgeons generally reaffirm the sentiments of Mr. Skey, and declare that these drugs are 'innocuous agents of good,' consequently patients will no longer submit to operations without them."

There is much more interesting and instructive matter in this work, as we hope will be apparent to the reader, from the nature of the numerous extracts which we have made, and we can confidently recommend the book for perusal.

Entozoa; an Introduction to the Study of Helminthology, with Reference, more particularly, to the Internal Parasites of Man. By T. SPENCER COBBOLD, M.D., F.R.S. London: Groombridge and Sons. 1864.

Tape Worms (Human Entozoa) their Sources, Nature, and Treatment. By T. S. COBBOLD, M.D., F.R.S. London: Longmans. 1866. Fcap., 8vo, pp. 83.

WE have been somewhat tardy in noticing Dr. Cobbold's book on entozoa. But as it is by no means a work of ephemeral interest, we think it desirable to bring it even yet before the notice of our readers, and to give them the benefit of our opinion as to its merits. It treats, in three parts, of Systematic Helminthology, of Special Helminthology, and of Spurious Helminthology. The first part

gives us a general account of the habits, structure, development, affinities, distribution, and classification of the entozoa, and their allies. The classification of these animals is naturally considered first, and is, perhaps, the most unsatisfactory portion of Dr. Cobbold's work. With a certain quiet quaintness, which is quite refreshing, the author remarks:—"The entozoa or helminths display a considerable variety of character." And truly, there is a great difference between a Tænioid and a Planarian worm. But for all this, these parasites must not be treated like ordinary beasts. They must not be made amenable to the common rules of classification, and grouped into orders and families, according to their structure and affinities. For

"The happiest, and perhaps, after all, the most truly philosophic way of studying the entozoa is to regard them as a peculiar *fauna*, destined to occupy an equally peculiar territory. That territory is the widespread domain of the interior of the bodies of man and animals. Each animal or 'host' may be regarded as a continent, and each part or viscus of his body may be noted as a district. Each district has its special attractions for particular parasitic forms; yet, at the same time, neither the district nor the continent are suitable localities as a permanent resting-place for the invader. None of the internal parasites 'continue in one stay;' all have a tendency to roam; migration is the very soul of their prosperity; change of residence the *sine quâ non* of their existence, whilst a blockade in the interior, prolonged beyond the proper period, terminates only in cretification and death."

While, however, such a plan may be very convenient, from a medical student point of view, the author does not hesitate to give us on the next page a somewhat less commonplace and more rational grouping of these entozoa, not based on the continents and islands within which they live, but on their general structure and affinities. Some are solid or parenchymatous helminths. These he forms into a Sub-class I., and applies to it Professor Owen's name, Sterelmintha. Others are hollow worms. These form Sub-class II., and equal the Cœlelmintha of Owen. Others, again, have no intestinal canal, and form Sub-class III., called Anenterelmintha by the author. These sub-classes would contain the following orders:—

Sub-class	I.,	*Turbellaria*, . . .	Planaria.
		Trematoda, . . .	Fluke.
„	II.,	*Nematoda*, . . .	Threadworms.
„	III.,	*Acanthocephala*, . . .	Echinorhynchus.
		Cestoda, ...	Tapeworm.

The pages of a medical journal are scarcely the proper place to discuss a scheme of zoological classification, otherwise we should be tempted to discuss the necessity for the existence of any of these sub-classes; to doubt the propriety of connecting the turbellaria with the trematoda, and to surmise that recent researches into the anatomy of the acanthocephala do not confirm Dr. Cobbold's statement, "that it is a very erroneous notion that these worms are furnished with a digestive apparatus."

The author proceeds to give a slight sketch of the order Turbellaria, dividing it into two families, Planaridæ and Nemertidæ. He gives a list of the more remarkable genera, forgetting, however, to give Quatrefages his proper place in the list of those who have studied the habits of this latter family. This order contains no parasitic forms. The order of the Trematoda is divided into five families—Monostomidæ, Distomidæ, Tristomidæ, Polystomidæ, and Gyrodactylidæ. An epitome of Dr. Pagenstecher's researches into the development of the Trematodes is given in this chapter; and several genera, not found as human parasites, are briefly described.

The Nematoda are divided into eight families—the Anguillulidæ, Gordiidæ, Oxyuridæ, Filaridæ, Cheiracanthidæ, Ascaridæ, Strongylidæ, and Cucullanidæ. In this order, some forms are found which bear an external resemblance to the common earth-worm, but differ from this annelid in very many important details; the majority are of small size, varying from a few lines to two or three inches in length; but some, as the Eustrongylus gigas, grow to a length of several feet. Of the order Acanthocephala, but one family, containing a single genus, is described—Echinorhynchidæ. Since the publication of Dr. Cobbold's work, however, a very remarkable new genus has been described by Lindeman,[a] as found inhabiting the intestines of owls at St. Petersburg; and Lespes[b] has added a good deal to our knowledge of their anatomy.

The Cestoda is the last order treated of. This is divided into three families—Tæniadæ, Bothriocephalidæ, and Tetrarhynchidæ.

The second portion of this work treats of the anatomical peculiarities, origin, mode of development, and propagation of the Entozoa infesting man; with a particular account of the injurious effects they produce; including a brief notice of the remedies employed in medical practice. The first three chapters contain an account of the Trematoda. The following species of which are

[a] Bulletin Soc. Nat. de Moscow. 1865. Pp. 484.
[b] Journal de l'Anatomie. 1864.

considered as human parasites:—*Fasciola hepatica*, Lin.; *Distoma lanceolatum*, Mehlis; *D. ophthalmobium*, Diesing; *D. crassum*, Busk; *D. heterophyes*, Siebold; *Bilharzia hematobia*, Cobbold; *Tetrastoma venale*, Delle Chiaje; *Hexathyridium pinguicola*, Treutler; and *H. venarum*, Treutler. Chapters V. to X. treat of the Cestoid worms. Of which seven species of *Tænia* and two of *Bothriocephalus* are described. *T. solium*, Lin.; *T. mediocanellata*, Küchen; *T. acanthotrias*, Wein; *T. flavopuncta*, Wein; *T. nana*, Siebold; *T. elliptica*, Batsch; *T. marginata*, Batsch; and *T. echinococcus*, Siebold; *B. latus*, Brem.; and *B. cordatus*, Leuck.

The Nematodæ are described in the remaining, four chapters of this special part. The species noted are—*Ascaris lumbricoides*, Lin. *A. mystax*, Rudolph; *Filaria lentis*, Diesing; *F. trachealis*, Cobbold; *Trichina spiralis*, Owen; *Strongylus bronchialis*, Cobbold; *Eustrongylus gigas*, Diesing; *Sclerostoma duodenale*, Cobbold; *Oxyuris vermicularis*, Brem.; *Dracunculus medinensis*, Cobbold; and *D. loa*, Cobbold; making thirty-one species in all to which it would appear the human species is liable.

The part devoted to spurious helminthology is added in order to render the work more useful and complete, but it treats of a miscellaneous assemblage of all kinds of animal and vegetable substances, or organisms, which have been from time to time erroneously described as belonging to the entozoa, as well as of some undoubted annulose animals, which have been, perhaps, falsely believed to be parasitic on man—such as Pentastoma tænioides.

Appended to this portion of Dr. Cobbold's work is a list of all the more important works, memoirs, and communications on the subject of internal parasites, which have appeared in the English language during the last half century. While the painstaking student will find in Leukart's *Menschlichen Parasiten*, which is now approaching completion, a more exhaustive, and we fancy a more comprehensive account of the human entozoa; yet the English reader, and more especially the English reading medical man, will find in Dr. Cobbold's work a fair, useful, and practical exposition of the subject, and one that by the beauty of its type and paper, and the brilliancy of its illustrations, throws the above alluded to production of the Leipsig press altogether into the shade.

The second work on our list is small in size, and essentially practical in its character. It is limited to the consideration of the tape worms, and will be found useful by those who may not wish to study the subject as given fully in the larger work.

Du Suicide et de la Folie Suicide. Par A. BRIERRE DE BOISMONT, Docteur en Médecine. Seconde Edition. 1865. Pp. 763, 8vo Paris: Germer Baillière.

On Suicide and Suicidal Mania. By A. BRIERRE DE BOISMONT, Doctor of Medicine. Second Edition.

WE have read with more than ordinary interest this work on suicide, coming as it does from the pen of the elegant author of the *History of Hallucinations*, we were fully prepared to find plenty of important materials, as well as interesting incidents, in its pages; neither have we been disappointed, and we now earnestly recommend its careful perusal, not only to the psychologist and the physician, but also to the statesman and legislator, as well as to the priest and the instructor of youth. It is impossible, in the short space allotted to a review, to give a satisfactory analysis of a work which, through upwards of seven hundred pages, never allows the readers, interest to flag for a moment, and where even the dry columns of numbers and statistical proportions are so blended with the most interesting details, that their monotony is unheeded and their dreariness unperceived. If Brierre de Boismont were not an authority to be relied on we might, perhaps, look upon much of his book and its statements as the result of his fervid imagination, and treat the entire work as a gigantic romance; it would seem too terrible to believe, that in France alone, since the commencement of the present century, upwards of 300,000 individuals have perished by their own hands; but it is no romance, no work of fiction; the police records and the documents of the "Archives du Parquet" are the foundation of this work, and twenty years was the time devoted to its compilation.

The materials out of which this book is elaborated are comprised within a space of ten years, extending from 1834 to 1843, and afford a basis of 4,595 suicides about which reliable information was obtained. Of these 4,595 suicides, little more than one-third were females, viz., 1,380, and 44 of the entire had committed self-destruction before the age of eighteen, 2 at the age of ten years, 9 at thirteen years, 12 at fourteen, 21 at fifteen, and 33 at sixteen. This startling announcement of suicide at so early an age could scarcely be credited, were it not that we unfortunately have even more melancholy statistics in the work of M. Durand Fardel, in which he gives 1 case of suicide in a child under five years of age, 2 under

nine, 2 under ten, 6 under twelve, 7 under thirteen, and 2 under fourteen years of age; all occurring in France, within a period of 10 years, 1835 to 1844.

"The idea of suicide is more frequent among children brought up in cities," says Brierre de Boismont, "and is caused by the bad education they receive." He blames the evil literature of the day, the low theatres, and the newspaper reports of suicide. Passing to the consideration of the age at which suicides are most prevalent, he finds that in Paris the most fertile age is from twenty to thirty, while in the provinces the greater number of suicides occur between forty and fifty.

The following is a tabular view of the ages and sexes of the 4,595 cases which are analysed in this work, and which all occurred in Paris in the course of ten years:—

Ages	Men	Women	Total
From 10 to 20	166	122	288
20 30	676	343	1,019
30 40	681	254	935
40 50	654	241	895
50 60	500	191	691
60 70	310	136	446
70 80	111	57	162
80 90	25	3	28
90 91	2	0	2
Age unknown,	90	39	129
	3,215	1,380	4,595

According to this table the greatest number of suicides will be found between the ages of twenty and fifty. Though even advanced age is not free from the taint of self-destruction, as we find 28 cases committed between the ages of eighty and ninety, contrary to the asserted opinion of Esquirol. The next statistics we meet with are in reference to marriage, and here we find an additional recommendation of that happy state, should an additional one be required, in the fact that out of the 4,595 suicides tabulated, there were 1,501 bachelors to 1,129 married men, 579 spinisters to 515 matrons, 210 widowers to 211 widows. The next statistical table has reference to conditions of life, and is so remarkable as to deserve to be reproduced without mutilation:—

Wealthy,	126	697
In easy circumstances,	571	
Earning a livelihood,	2,000	2,000
Not in good circumstances,	256	1,588
Ruined,	159	
Poor,	709	
Wretchedly poor,	464	
Circumstances unknown,	310	310
	4,595	4,595

If the above number be roughly divided into two categories—poor and not poor—we find 2,697 suicides among the latter for 1,898 among the former, which one would have been scarcely prepared to expect. The next table is too long to give in extenso, and too important to curtail; it has reference to the cause which induced the several suicides, and we shall content ourselves with noting them:—About one-eighth of the entire were caused by drunkenness, which, next to insanity, was the most fertile cause. The consideration of the different classes of causes which had led to the suicides of these 4,595 individuals, occupies 232 pages, and is full of interesting anecdotes; and so far as these anecdotes have reference to French incidents and French life, we read them with pleasure, trusting in the accuracy of the French police reports, which are the foundation of the work itself; but when the author travels away and has no longer the sober matter of fact relations of the "Commissaire de Police," we must, we fear, receive *cum grano* both the incidents, the *so called* facts, and naturally the deductions; for instance, he copies from a London penny-a-liner that one Rogestone ate, in ten years, a fortune of £150,000, literally gormandized away that sum, and that finally, being reduced to having nothing else but a shirt, an old battered hat, and one guinea, he spent the latter in treating himself to a woodcock superlatively well cooked, which having eaten with every relish, he allowed himself two hours of quiet rest to digest it, and then threw himself into the Thames from Westminster-bridge, where he might have been rescued had it not been for the gambling propensities of some gentlemen on the bridge, who were making bets on whether the man would be drowned or not! Now every foreigner who reads this book will firmly believe every word of this rich canard. At p. 284 the medical jurist will read with interest the detailed account of the different sensations and sufferings of an individual who committed

suicide by a proceeding nationally French, viz., by the fumes of lighted charcoal, and is all the more interesting as it is drawn out by an educated person; this form of suicide is very uncommon with us, while in Paris it is the most usually adopted, and far exceeds every other form, as will be seen at p. 563, where it will be found that of 4,595 suicides, 1,432 were caused by the fumes of lighted charcoal.

The third chapter is entirely devoted to the consideration of maniacal suicide, and is very interesting, probably all the more so from having been written in a country where "temporary insanity" is never adduced as a cause of suicide except such perverted state of the faculties is clearly proved to have existed previously or at the time of suicide. The fourth chapter is devoted to the nature and metaphysics of suicide; it is a chapter, that to review conscientiously, should be copied out in full; it is full of the most interesting anecdotes, which we must only hope are reliable, and also replete with profound philosophical reasonings. The fifth chapter treats of suicide in its relations to civilization; it is a most interesting review of the suicidal tendency in old age, from the remotest antiquity to the present day, and will well repay the reader; in it, at p. 502, will be found an interesting statistical table, showing the number of suicides per million of inhabitants in the several countries in Europe; and whereas some years ago it was supposed in Europe that the English were the most suicidal of all nations, this table shows, to our honour, that while in Denmark suicides are 280 per 1,000,000, in Great Britain they are only 69. The following chapters treat of the means to be employed in endeavouring to modify or diminish the tendency to suicide, especially to inherited tendency; it is an interesting subject, and treating as it does of education, marriage, consanguinity, &c., &c., it branches out into some of the most interesting physiological and metaphysical discussions; but here again we must caution our readers against being carried away by this fascinating writer, as we several times have found him making the most laughable blunders when travelling out of his strictly legitimate course—the consideration of suicide, as based on the 4,595 cases furnished by the "Prefecture de Police." The following may serve as an example and a caution, and will be found at p. 587. For shortness we shall paraphrase it:—About thirty years ago Hebert (*sic.*), Bishop of Calcutta, foresaw the dangers which the mother country would some day encounter, from the constantly increasing number

of half-castes in India, whose active passions and turbulent dispositions, even so long ago, caused him much anxious apprehensions; and, as Dr. Godineau says, in an article on the temperament of the Hindoos, while they (the Hindoos) have ever remained the same as in the days of Alexander the Great, willing to submit to every form of slavery, the Mussulmans, who have arisen from the intermarriage of the Hindoos with the nations descended from the plateaux of Ireland, alone present the attributes of vigour and health, &c., &c., &c. We confess that when we read this passage we rubbed our eyes, took the book closer to the light, and tried to make sense of it, but unfortunately the nonsense is too plain, and we regret to find that Brierre de Boismont knows nothing of ethnology when he publishes as a fact that the Mahometan races of India are descended from the intermarriage of the Catholic Irish with the Pagan Hindoos; and knows about as much of geography when he speaks of the "Table lands of Ireland," and their inhabitants.

Syphilitic Affections of the Nervous System, and a Case af Symmetrical Atrophy, with other Contributions to the Pathology of the Spinal Marrow. By THOS. READE, M.B., T.C.D., L.R.C.S.I. London: Churchill. 1867. Post 8vo, pp. 111.

THIS is a reprint of papers originally published in this Journal, with some additional notes and cases. In the first paper, published so long ago as 1851, Dr. Reade establishes, in opposition to the dogmas of Hunter and Sir A. Cooper, the liability of the nervous system to syphilitic affections, and by the relation of several well-marked cases in this and subsequent papers, he proves the correctness of his opinion. The vein thus opened by Dr. Reade has since attracted numerous workers, but we do not know that much has been added to the accuracy of the information presented to us by Dr. Reade in the first instance.

As the papers originally appeared in our own pages, it seems unnecessary to present our readers with any analysis of them; but we cannot avoid congratulating Dr. Reade on now finding his views, which at first met with opposition, so universally accepted by our best and most active pathologists.

PART III.

MEDICAL MISCELLANY.

Reports, Retrospects, and Scientific Intelligence.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS.

The Society met on the 22nd May, to consider the late epidemic, which some have named "Malignant Purpuric Fever," but considered by others to be "Cerebro-Spinal Arachnitis."

The President, Dr. Stokes, in the Chair.

He declared the order in which the various cases were to be brought forward, which had been determined by ballot; and called upon the Honorary Secretary, who then read the following communication by Surgeon-Major Cogan, 2nd Battalion, 2nd Regiment:—

The following are some brief notes of cases of a disease (supposed to be what is now called "Black Death") that came under my observation lately, but I cannot say if I am justified in giving it such a nomenclature, as, in all my experience of epidemics, I have never met with any disease presenting appearances or symptoms similar to what I shall now briefly state.

In order to arrive at some conclusion as to the origin of the disease and to its making its appearance in this barracks, I shall first commence by stating that part of the regiment was out on duty with the Thurles Flying Column, and when in Thurles, in the beginning of April last, two men of the regiment were attacked with typhus fever; one of them died in twenty-seven hours, and it was reported to me by some of his comrades that he was covered all over with purple spots when he died. The other man was attacked at the same time, and has since recovered, but, as he has not yet returned to his regiment, I cannot say anything more about him.

The Flying Column about this time was broken up, and the detachment marched from Thurles to Roscrea, taking two days for the journey.

On the day of their arrival at Roscrea (5th of April), one of the men complained of febrile symptoms, and the officer in command very judiciously ordered him into the regimental hospital of Birr, by train, a distance of about ten miles. I saw him immediately on his arrival, when symptoms of typhus fever soon presented themselves; he got through steadily but slowly, and when convalescing he injudiciously exposed himself to the open air on a wet day, and got a relapse, from which he died eleven days afterwards.

After two days' halt at Roscrea the detachment came in by train to Birr to rejoin the head-quarters of the regiment. Nothing of any importance occurred among them until the night of the 13th April, six days after their arrival, when a little boy, ten years of age, was suddenly attacked with strong fever and involuntary diarrhea. I was not called to see him until nine o'clock next morning, when I found him with a hot burning skin; bowels continually moved without any previous notice; great prostration; thirst; a dark brown furred tongue; pulse small and quick, and his extremities covered all over with dark purple spots. At two o'clock p.m., I partly succeeded in arresting the diarrhea; bilious vomiting then set in, which was copious, and continued until five o'clock p.m., when it ceased; he then became quite unconscious and comatose; and at seven o'clock p.m. same date, he died—the purple spots increasing in size and colour all the time. Duration of disease seventeen days.

The treatment in the early stage consisted of Dover's and grey powder, in small doses, together with stimulants. In the latter stage vomiting set in so violently that nothing could be given to him. I may here mention that this child's mother washed for some of the men who were out with the flying column; the room where she resided was well ventilated and not overcrowded.

Case II.—On the morning following the day on which the case above alluded to occurred, there were two fresh attacks, one a young married woman, whose husband had been out with the flying column, living in a small room by themselves, which was well ventilated and not overcrowded. The other a recruit of ten months' service.

The woman, when I first saw her, two hours from first attack, complained of a very severe pain in her head and back, and all over her body. Great thirst; tongue moist, and covered with a creamy substance. She speaks at times somewhat incoherently, and the body is covered all over with large dark purple spots; her husband states that the eruption made its appearance at the same time with the fever. After the administration of a strong mustard emetic she threw up nearly a gallon of bilious fluid which relieved the headache, and after a few doses of the diaphoretic mixture were given, a copious perspiration was established, which relieved her of the bodily pains. She progressed favourably, only

requiring a mild purgative occasionally. On the third day severe pain in the forehead, left eye, and temple set in, accompanied with conjunctivitis and chemosis of left eye; two days later, after great suffering (which leeches and a blister did not appear to palliate), pus formed between the layers of the cornea, and vision has since been obscured. The purple spots, which were chiefly on the extremities, remained for three days before they faded away.

She is now convalescent, with the exception of the eye, and I am in hopes that she may yet partly recover her sight.

Case III.—Pt. C., æt. 19, a recruit of ten months' service, of a delicate constitution, had not been out with the flying column, but slept in the same room with some of the men who had just returned from it, and whose washing was done by the mother of the dead child already alluded to, reported himself sick at nine o'clock a.m. On the morning of the 14th of April, while waiting to be called into the surgery he fainted; he was carried into a ward and placed in bed, and as soon as he recovered a mustard emetic was given to him which brought away large quantities of bilious fluid. In less than an hour after admission he became quite delirious, and his teeth and lips were covered with dark sordes. It was not until a blister to nape of neck took effect that consciousness returned, and then he complained of pain in head, and all over his body; tongue very dry and brown, and the papillæ elevated; he also complained of intense thirst; there were some slight patches of purple spots, but not so visible as in the two former cases. The bowels were obstinately constipated, and two doses of haust. cathart. were given to him at intervals without having the desired effect. A large turpentine and oil enema was administered, which did not take effect for nearly three hours, when he nearly filled the night stool with a quantity of small black fetid lumps resembling pills, which gave him almost instant relief, and he then passed a pretty good night. In the morning following he answered questions rationally enough for a short time, when his mind would wander again. The skin was now moist, but the dry sordes on tongue and lips continued; he complained of great thirst.

The above symptoms continued much in the same way for the next forty-eight hours, when he began to improve in every respect, with the exception of the thirst, which was still very great. He continued to improve steadily for the next seven days, until he imprudently exposed himself to a draught at the window, which brought on a slight relapse, but he is now almost convalescent.

In this case it will be observed how quickly the head symptoms made their appearance, and the obstinate constipation he suffered from; and, although he was not out with the flying column, his case, along with the others, go to prove that the contagion was imported by the men from Thurles, where typhus first made its appearance.

The next case was more interesting, and of greater importance, and presented other and different symptoms to those already described.

Case IV.—The patient was a lively, interesting girl of four years of age. About 3·30 o'clock p.m., on the 25th of April, she was suddenly attacked with violent headache, pain all over her body, particularly in the abdomen, a burning hot skin, a full and so quick a pulse that I could hardly count it. The parents gave her a warm bath, and at nine o'clock p.m., when they observed the child getting worse, they sent for me. I found the child suffering from the above symptoms, and very restless, a desire to vomit, but could not throw up anything, and the skin was covered all over with a purple eruption. A mustard emetic relieved her very much, as she vomited a large quantity of green bilious fluid, after which she slept, and passed a pretty good night. At nine o'clock a.m., I was informed that she was in a fit, and when I arrived she was just recovering from it, but I observed great muscular twitchings all over her body, particularly in her arms, legs, and those of her face. The arms were in a constant state of jerking, and her legs drawn up. These symptoms increased, and she was constantly raising her body up by her heels. She now required some person to be always in attendance on her to prevent her falling out of the bed; her face presented a wild appearance; the eyes staring, and the pupils much dilated; she did not speak, but constantly giving loud and short screams, and putting her hand to her head, indicating pain there; the bowels were opened but twice during her illness, and the discharge was very fetid, accompanied with wind.

All the symptoms increased in severity, particularly the screaming. Muscular twitchings and restlessness, and the purple spots became larger and darker, and at 8·30 o'clock p.m. she died. Duration of disease seventy-seven hours.

The treatment adopted in this case was a mustard emetic at the commencement, followed by a diaphoretic mixture and purgatives; mustard poultices to forehead, back of neck, and spine; cold applications to the head; latterly, turpentine and oil enemas, ammoniated tinct. valerin; small and repeated quantities of wine, brandy, and lemonade, for drink. All these remedies appeared to give relief, but it was only temporary, as the symptoms returned in a short time as bad as ever. The turpentine enema appeared to give the greatest relief. The valerian was not given until within eight hours of death, and the first dose produced perfect quietness for five minutes, but after that nothing appeared to give her relief.

Case V.—The next and last case was a delicate little boy of eight years old. He took ill on the night of the 29th April, when he vomited and

was purged; but in the morning he got up, ate his breakfast, and went to school, where he had only been one hour when he was sent home ill. It was not reported to me until five o'clock p.m. that day. I found him complaining of great headache, and pains all over his body, a dry brown tongue, very hot skin, and he was covered with purple spots, countenance anxious, and the pulse full and quick. He became speechless at nine o'clock p.m., and was in spasms and convulsions all the night, and he was continually screaming. Towards morning he became better, the convulsive fits coming on only every second hour, but the twitching of the muscles were continuous, and there was muttering delirium. He remained so until the afternoon of next day, 2nd May, when the convulsive fits set in worse than ever, which continued so until 4·30 a.m. next day (the 3rd), when he died apparently in great suffering.

The twitchings of the muscles of his face and arms were very visible, and he was constantly jerking his arms and legs; and the purple spots became larger and darker in colour. Duration of disease, from my first visit, fifty-nine hours, but from first attack fourteen hours more.

The treatment consisted of a mustard emetic, diaphoretics, turpentine, and oil enemas, mustard poultices to forehead, back of neck, and spine, wine, lemonade, &c., &c.

The foregoing five cases occurred within the past month in these barracks during the prevalence of an outbreak of typhus and continued fever among the troops; and, I think, it is nearly proved that it was not from defective ventilation, overcrowding, nor bad drainage, the disease made its appearance here, but entirely depending on the importation of it from Thurles by the men who had been there.

The first case (that of the child whose father had not been with the flying column, but his mother washed for the men who had been out) made its appearance during the time the first washing was being done after their return. The next was the young married woman, whose husband had been out, and afterwards they slept together; and the recruit, who slept in the same room with the other men who had been out. The origin of the disease in the two children last mentioned can be similarly traced.

It is not my intention to make any comments on the nature of this new, but strange, disease. I shall leave it to those who have already seen something of it, and who have had greater experience.

The striking features of the disease are the febrile symptoms, and the purple eruption making their appearance almost at the same time, and the delirium setting in so soon afterwards.

Dr. Gordon read the following:—

On looking back upon the various cases of illness which may be

said to compose the present epidemic, the first circumstance calling for remark appears to me to be that the same set of symptoms do not uniformly prevail in all cases: in some instances the symptoms are almost entirely (at least on superficial examination) referable to the nervous system, and in others, with at least equal partiality, they confine themselves to the more obvious tokens of blood affection.

To this fact we evidently owe the different nomenclature of the disease, cases of the first kind being termed cerebro-spinal meningitis, and of the latter, spotted fever, or some other more formidable name.

It appears to me, therefore, to be desirable, in the first place, to decide, whether we are warranted in classing under the one name the various cases which have been met with, presenting either of those sets of symptoms, or whether we are to consider them as separate and distinct diseases. I will briefly relate two cases which have occurred to me since the publication of my remarks on this disease in the *Dublin Quarterly Journal* of the 1st inst.

A lady, thirty-seven years of age, was complaining for about a week of lassitude, occasional diarrhea, want of appetite, nausea, and inability to manage her household affairs as usual. If she walked out she became giddy, and her head so confused that she had to return home immediately. Driving shook her so that she could not use this mode of exercise either. However, on Sunday, the 12th, she was induced to take rather a long drive to accompany her husband, who had been also unwell. The entire time she was out she was occupied shifting her position so as to get some rest for her back. When she came home she had to lie down, and applied all sorts of domestic remedies, soothing, and counter-irritant, but without relief. At eleven o'clock I found her suffering great pain in her back, shooting forwards towards the epigastrium. This pain was most intense. She had also pain shooting upwards towards her head, in which she complained of great weight, and downwards towards her legs, which she said were powerless; she had also a peculiar sense of constriction around the lower part of her chest. She was in a state of partial collapse, and the intensity of the pain seemed to be the only thing which prevented this from being complete.

She soon vomited—the vomiting was first the remains of food, which she had rapidly swallowed on her return from driving, under the idea that her distress arose from fatigue and hunger. It soon became watery and green, and was provoked by the least motion. This intense pain and vomiting continued for fully six hours. She got no sleep until seven o'clock in the morning, and then, on waking, she had cramps, pains down the legs, great sensibility of the surface of the body to alterations of temperature. This was obviously a case of spinal arachnitis, but there were also some few symptoms which, in my opinion, warrant our

recognizing it as a secondary affection. The condition of the pulse was some element in the diagnosis. It never assimilated the pulse of cerebral or spinal inflammation; it never rose above 84, and this is, as far as I have been able to judge, a great peculiarity of this epidemic, as contrasted with typhus or typhoid fever—the comparative slowness of the pulse. We had here also a weakly acting heart, and immense sense of weakness, long after all collapse had passed away, and as the disease yielded to treatment, we had further confirmation as to the blood origin of the disease. The pain in the back and vomiting yielded at length to the extensive use of an embrocation of compound camphor liniment and tincture of belladonna, which produced most powerful counter-irritation, and, of course, allowed of the absorption of the belladonna. Since the irritability of the stomach has been allayed, wine and quinine are completing the cure. There were never any spots in this case. The following is a remarkable contrast to the above case:—

A young gentleman, about twenty-three years of age, having bathed when somewhat fatigued, was attacked with the usual symptoms of anorexia, and shortly afterwards his face and the upper part of his body was covered with an eruption somewhat like measles, but the patches were irregular in size and shape, they were dark coloured, they were rough looking on the surface, they could be more or less completely effaced by strong pressure, they were thickly interspersed with petechiæ, they spread gradually over the whole trunk, being most thick on the back, passed down the thighs, and have come out sparingly about the knees, and on the dorsa of the feet.

In this case the eruption forms the grand prominent feature (it is totally unlike measles, and may at once be excluded from the ordinary exanthemata by the mode of its development, and by its duration; it is still coming out on the lower extremities, and has not yet disappeared from the upper parts); the other symptoms of blood affection are, as in the lady's case, a weak condition of the heart, a feeble but not a rapid pulse, 80 is about the average, but we have the following symptoms of a simultaneous affection of the cerebro-spinal meninges, corrugation of the brow, occasional pain in cervical region, sense of weight in head, occasional subsultus, nausea, and sometimes diarrhea, with a furred and that peculiar symptom—a greenish tongue.

I bring forward these brief notes of these two cases, merely as examples of what I stated above, that there is, in almost all cases, a marked predominance of one set of symptoms, but never to the total exclusion of the other. The grounds then which, in my opinion, exist for our classing these two sets of cases under the one nomenclature are, first, that in many well-marked cases we find the two sets of symptoms (if I may so call them), evidences of profound blood affection, and proof of extensive

cerebro-spinal meningitis in perfect combination; 2ndly, that although the indications of blood affection may greatly prevail in one case, and the symptoms of lesion of the nervous centres in another, they never do so to the complete exclusion of the less obvious phenomena; and 3rdly, that, *mutatis mutandis*, the same plan of treatment will cure the affection whichever train of symptoms predominate, due care being had to the probable secondary affections which the nervous centres may have to undergo.

What the general title should be is another question altogether.

Wood—who, in the last edition of his *Practice of Medicine*, gives a very satisfactory account of the disease—wishes it to be called *petechial* fever, as no other form is so peculiarly marked with true petechiæ, and as there is no other phenomenon more constantly present which can serve as a basis for nomenclature.

All physicians who have had opportunities of seeing epidemic fevers on a large scale, have met with typhus fevers without eruption, and typhoid fevers without eruption, and therefore the fact that cases have occurred of this epidemic without eruption can form no well-grounded objection to the title being selected; but adopting another basis for our classification, we might, perhaps, with more advantage, term it cerebro-spinal fever, as we call others, from their pathology, and the habitat of their morbid phenomena, gastric, enteric, &c.

Dr. Lyons read the following:—

Case I.—This case may be briefly noted. It is that of a youth in the prime of vigour, aged nineteen, fully developed; an energetic cultivator of athletic sports, and apparently in perfect health prior to the seizure which struck him down with such a terrible fatality. The details of this case I owe to the kindness of Drs. Clifford and Grant.

An officer, of one year's service, nineteen years of age, full habit of body, sanguine temperament, and hereditory pre-disposition to head affection, reported himself sick on Tuesday morning, April 16th, to Dr. Grant, stating that he felt bilious and out of order, and inquired whether he could go to the regimental races (Baldoyle). As his tongue denoted slight disturbance of the stomach and liver, he was ordered a mild mercurial purgative, to be followed by a saline draught, and enjoined rest. Visited again at noon—found better and anxious for food. Ordered very light diet. Seen again at six p.m. The bowels had been freely moved; copious biliary evacuations; otherwise not much change. At eleven p.m., finding that there were feverish symptoms and headache, ice was ordered to head, and a saline diaphoretic. Dr. Clifford was then sent for, and on seeing him soon after, he found the headache continued, and that irritability of the stomach had set in, the matter vomited being

dark purple, coloured with a slight amount of ropy mucus. Ice allayed irritation of the stomach, and he fell into a tranquil slumber for some time; pulse soft, not frequent; skin moist and perspiring; on waking he was perfectly sensible, and did not complain much of headache; the rest was tolerable during the remainder of the night, and in the morning there was a marked improvement in all the symptoms; complained only of headache (frontal). At nine a.m. he was removed to a fresh bed, and left proceeding in a most favourable manner under charge of Dr. Grant He continued tranquil for about half-an-hour, when he suddenly became restless, and was with difficulty restrained in bed. At eleven a.m., symptoms of congestion of the brain set in; small dark spots became now visible which had not existed before; the head symptoms increased rapidly, and resisted all treatment (external). Internal treatment being impossible, as he could not swallow.

The treatment consisted in unloading the intestines and promoting secretion from the liver, watching carefully for head symptoms, applying ice, &c., &c., and when the congestion of the brain occurred, leeches to the temples, turpentine enemata, mustard sinapisms externally used and renewed over the spinal column, epigastrium, limbs, &c. Towards the end the action of the heart and strength of the pulse became gradually weaker, the respiration more impeded, and he quietly sank at about one p.m., having been insensible since eleven a.m. There was no retraction of the head.

There was no *post mortem* examination made.

The body was seen at about 1·45 by Dr. Stokes and Dr. Lyons. The head and face, as well as the neck, were of a dark cyanotic tint. The surface of the body generally was not abnormally discoloured, but on the back there was a considerable amount of deep congestion of the skin between the shoulders, and down to about the waist.

Here and there upon the back, flanks, abdomen, calves of the legs, and inner parts of the thighs, were to be noted some dark, bluish-black spots, perhaps a dozen in all, some angular, more irregularly rounded, from two to three lines in diameter, unaffected by pressure, not prominent above the skin, and feeling firm to the touch.

Case II.—For an opportunity of seeing the next case, I am indebted to Dr. Banon, who wished me to visit the patient with him, as he had not previously met with a case of this singular and appalling malady; it is but just to add that he had already made an accurate diagnosis and prognosis of the nature and formidable character of the disease under which our unfortunate patient was found to be labouring.

When seen by Dr. Banon and myself, at about 11·30 p.m., on the 24th April, she was found lying on a sofa perfectly unconscious, and wholly incapable of being roused, but she lay with her knees drawn up, showing

that muscular power was not altogether annihilated; her breathing was very quick, about 40, short, and somewhat noisy; the pulse was all but imperceptible, and the heart's sounds were with difficulty heard by the stethoscope. The eyes were lurid; the pupils, of about medium size, were found to be wholly insensible to light. A clammy sweat covered the body; the feet and hands were cool, but had not quite lost all animal heat. The most notable feature about the case was, beyond all question, the presence of numerous dark-purple spots, thickly strewn on the face, trunk, and extremities. They varied in size from that of a sixpence to that of a half-crown piece, and upwards, and here and there seemed to run into each other, while in various parts of the body the intermediate skin wore a general dark cyanotic hue.

The most active treatment, by external and internal stimulation, medicinally and otherwise, proved unavailing, and the patient died at about one o'clock a.m. on the 25th.

Little of an accurate character could be ascertained as to the history of this case. The patient was about forty years of age; unmarried; a seamstress; she had pursued her avocations to the day of her fatal illness, and it was late at night when medical aid was first sought. This, in itself, is sufficient to show the insidiousness of the earlier symptoms, which were such as to raise little or no alarm, while, towards the close, the suddenness with which the eruption of purpuric patches was thrown to the surface, and the rapid supervention of symptoms of failure and depression of the vital powers, with the speedily fatal issue, mark, in a striking manner, one of the most characteristic features of this strange and terrible malady.

It may be worth while to note that the patient's mother, not unfamiliar, as we may presume, with sickness in many a form, repeatedly exclaimed, "Oh, this is the new disease. I'm sure 'tis the new disease," &c. Death took place in about thirty-six hours from the time at which any notable departure from health was observed.

Case III.—I had the advantage of seeing this case in consultation with my friend Dr. Byrne. The patient was a fine, handsome boy, of about eleven years of age, of well-nourished frame. On the 24th April he took a long walk with a grown relation; towards evening he sickened and complained of headache, when some aperient medicine was administered by his friends. Later in the same night he was visited by Dr. Byrne, and until about twelve that night no spots of any kind were visible on his person. On the 25th he was seen by me in consultation with Dr. Byrne, who had at once, on seeing the spots, recognized the true nature and formidable character of the disease; although, to the ordinary observer, there was little about the patient to show the danger in which he was.

When seen at one p.m. on the 25th, his state was as follows :—He was sitting up in bed ; made little or no complaint of headache, which he said was better ; of sickness of stomach, for there was none ; or of any other specific of what kind soever ; he was perfectly clear and collected ; had a full, strong voice ; could rise in bed, turn, help himself in every way, and wanted to be allowed to sit up ; his chief inquiry was, "doctor, doctor, what are these spots?" pointing to numerous dark, blue, black spots on his arms and elsewhere. With such full possession of consciousness, and such an amount of muscular power as he retained, it was not a little surprising to find that there was a total absence of pulse, which was completely extinguished in both radials, and the heart's sounds were but faintly audible to the stethoscope.

The eyes were slightly injected, but the pupils were perfectly natural ; the face was greatly discoloured, or rather somewhat dirty looking, with two or three angular spots on the left cheek, of blue-black colour, firm to the touch, unaffected by pressure, perceptible as lying in, above, and beneath the skin, and very much of the character of what are known as weals. These spots were found on the face, arms, forearms, backs of hands, on the trunk, and a few on the thighs and legs, which were generally somewhat of a cyanotic hue.

A mustard emetic was administered and freely taken, long retained, and at length but partially returned with no free effort to vomit, notwithstanding the aid of hot water. External and internal stimulation was freely employed, and all medicines and nourishment were readily taken and retained, but with no sensible improvement to his state. He was repeatedly seen both by Dr. Byrne and myself during the day, and all our directions were carried out with unflagging zeal. At about half-past six o'clock slight returning pulsation in the radial arteries could be faintly felt, but this proved only a fallacious symptom, and with little or no further change he sank at about half-past nine p.m., a little over twenty-four hours from the time when he first sickened, and less than twenty-two from the time the spots first appeared.

Of the three cases just cited it is to be observed, that as well as those previously recorded by me, all occurred in persons apparently in full vigour of health, with well developed and well-nourished frames, of full habit, and in whom the adipose tissues abounded.

They are new to me in the character of the cutaneous spots and patches which they present. They all showed an absence of specific lesion of the nervous system, so far as I read aright their pathological indications. And long prior to their occurrence, during their prevalence, and since, I have had under careful observation, and treated numerous examples of the best marked specific lesions of the central portions of the nervous system, and their membranes.

Finally, I regard the pathological affinities of this strange malady to lie

rather in the category of those diseased states which include blood-poisoning, yellow fever, cholera, the effects of sun-stroke, than with those in which active hyperemia exists in one stage, and lymphy or purulent exudation in another stage is poured on the brain, cord, or their membranes. But I am quite free to admit that there are two distinct but occasionally mixed types of disease in the late epidemic. I regard the disease which I have described as the algide condition of a zymotic malady, and I propose to designate it FEBRIS NIGRA. I shall be prepared to discuss its pathology more fully when the proper time comes; I now give place to the able contributions which are to follow.

Dr. JOHN HUGHES read the following:—

Jane Traynor, aged six years, was admitted into the Mater Misericordiæ Hospital, April 10th, 1867.

She went to bed on the night of the 6th in her usual health, and awoke next morning complaining of sickness of stomach. Afterwards she vomited, and both the nausea and vomiting continued up to midnight. Her mother also states that the surface of her body was then quite livid.

On the morning of the 8th dark spots were to be seen on her face, legs, and arms, and in the evening on the body also.

Dr. Montgomery, of Blessington-street, saw her on that day, and his description of her condition corroborates that of the mother. He also says that she was semi-collapsed, almost pulseless, and rather cold. On the night of that day her head was first remarked to be drawn backwards. The spine appeared curved and the legs bent.

On the 9th there were no new symptoms, but those already existing were more strongly marked.

On the 10th, the day of admission, the above symptoms were very prominent—the retraction of the head, the arching of the spine, the flexed position of the limbs, the rigidity of the muscles, the extreme sensibility of the surface, and the pained and anxious expression of the face; the knitted brow, the suffused eye—were very remarkable, and plainly indicated cerebro-spinal disturbance.

Superadded to these symptoms, there was a peculiar eruption of dark-coloured livid, almost black, spots, over the entire body, except the neck and scalp. The eruption was, however, much more abundant on the face and extremities than over the trunk; and the size of the spots was also larger in the former than over the body, in some instances attaining the size of a sixpence.

Those spots were irregular in shape, but the smaller ones were circular, or slightly oval. In fact, looking at the child as she lay in bed, a superficial observer might not unnaturally conclude she was labouring under an attack of measles of an asthenic or malignant type.

It is hardly necessary to add that the pulse was extremely rapid, and occasionally imperceptible.

The heart sounds were natural; the body was wasted; the temperature low; sensibility of surface exalted; the eyes suffused; pupils natural, with little expression, and apparently diminished consciousness; bowels free, evacuations passed in the bed; great restlessness; incessant whining, and jactitation of the arms.

11th.—Pulse still incalculable, and occasionally imperceptible. Rested pretty well last night. No convulsions, nor any other appreciable change.

12th.—Pulse 138; she is not so dull; occasionally notices what is going on about her; she lies in bed quietly, but whining almost continually. The conjunctiva of left eye is more inflamed, and the eye looks dull; vision, however, is not impaired. Some portions of the rash are of a redder colour; a few, however, have become almost black, especially one, situated over the left elbow, of an oval shape, and surrounded by a red margin, which is nearly the size of a shilling.

13th.—Pulse 140; very weak; rested badly last night; continually screaming as if suffering intense pain; rash generally becoming of a reddish brown colour.

The cuticle over those spots which were noticed to be the darkest (almost black) is now raised by effusion of a sero-sanguineous fluid underneath it. The retraction of the head and the arching of the spine are still strongly marked, fully as well as heretofore, although she appears somewhat more conscious, and calls occasionally for her mother, and recognizes the sister on duty in the ward.

14th.—Pulse 134, and fuller; on yesterday a vesicular eruption appeared on the shoulder, on the chin, and on the bridge of the nose. The former rash has assumed a brighter colour. She takes broth and milk freely; other symptoms unchanged.

16th.—Pulse 120, stronger; slept a good deal last night, and also to-day. The measly rash is fading, but the vesicular portion of it, which had previously ruptured, is replaced by a yellowish superficial ulceration surrounded by an inflamed margin. The eye is still inflamed, but does not look so dull. The upper extremities have completely lost their rigidity, and the head is less retracted; takes nourishment freely.

18th.—Pulse 100; rested well last night; is livelier and more sensible to-day. The head is still retracted, and the spine arched, but there is no rigidity of the muscles, and she allows herself to be placed in a straight position; the rash is fading everywhere, and there is now none visible on the body; the eye is clearing.

From this date forward her convalescence was uninterrupted, though slow, and we remarked, when every other symptom of her severe illness had disappeared, there was strabismus apparently of the left eye. Thinking that this affection might have existed previous to her present illness,

we made particular inquiries of her mother, who assured us she never had anything wrong with her eyes, and in confirmation of that statement she is now fast recovering from that symptom.

The treatment I adopted in this case was free, and I may say very decided—counter-irritation over the scalp, with internal administration of iodide of potassium and bark, at the same time supporting the system with wine and nutritious diet.

I looked upon this case as one of cerebro-spinal meningitis, to which was superadded this peculiar eruption. For all the most prominent symptoms pointed to such a lesion, and I was the more strengthened in this opinion from having had in the same ward two other cases shortly before, which presented almost all the same symptoms *without any eruption*, and ended fatally. *One* was a girl named Charlotte Smith, aged 11, who was admitted on the 1st, and died on the 11th of March. This patient had the retraction of the head, and arching of the spine with flexure, and rigidity of the limbs, suffusion of the eyes, convulsive fits, and other symptoms, referrible to the cerebro-spinal system, well-marked on her admission, and for a week before; and this condition of the spine and muscular system was so permanent that the body could not be straightened, even after death.

On making a *post mortem* examination the only lesion found was an effusion of serum into every cavity of the brain, and into the spinal canal without any trace of lymph or pus.

Another was Mary Hart, aged seven years, was admitted from the dispensary on the 27th March, and died on the 8th of April.

She had been ill for a few days, but on admission had no special symptoms, except great dulness, listlessness, and depression of the vital powers, and loss of appetite.

On the third day the head became retracted, the spine arched, the limbs flexed and rigid, and she was seized with convulsions. Some days before her death she lost her speech and sight.

In this case no *post mortem* examination was allowed; however, there can be little doubt we should have found pretty much the same appearances as in the case of Charlotte Smith, who died some days before Hart's admission, having had almost exactly the same symptoms.

Dr. Haverty, Surgeon, 52nd Light Infantry, read the following *Abstract of Cases of Cerebro-spinal Meningitis, and so-called Black Typhus, or Malignant Purpura, &c.; from the Hospital Records of the 52nd Light Infantry.*[a]

Private Hornblow—Meningitis.—On the 24th of February he was on guard at the Magazine Fort, and on being relieved next morning came to

[a] See observations on these cases by Mr. Haverty, at page 87.

hospital with all the signs of an impending severe attack of disease. There was a tendency to prostration, with a livid purple hue of countenance, suggesting at first sight the probability of an acute affection of the lungs; but there was no cough, and no stethoscopic indication to that effect.

After lying quietly in bed for some hours, sleeping a good deal, he suddenly complained of severe pain of head, which gradually increased to such an extent that about midnight he became very restless, and when visited about four o'clock a.m., was tossing about and almost shouting with pain. The pulse at this time was firm and resisting, and between 70 and 80 beats; tongue dry and brown; skin hot and harsh; nothing peculiar in the pupils.

A few leeches to the temples; calomel and James's powder every second hour, and a turpentine enema, were followed by well-marked relief; but again in the following night, there was a recurrence of the violent head symptoms, and on being seen at one o'clock a.m., his state was much as on the previous night. A blister was applied to the nape, the head shaved, and the tartrate of antimony ointment rubbed into the scalp.

A state of comparative quiet again succeeded for many hours, but only to be followed by the usual intense pain of head, with constant moaning and restlessness, and no steady sleep; the tongue remained dry and brown; the pulse less resisting; the pupils sluggish, but not irregular; bowels open.

On the 1st of March there was little change, except that he now for the first time complained of severe pain all along the spine, with great tenderness on pressure.

The pain of head and in the eye-ball still persistent, but not so intense as at first; tongue getting a little moist, but covered with brown fur; pupils sluggish; intestinal discharges very dark and offensive.

On the 3rd the pain of head was more troublesome than in the back; the pupils showed little or no sensibility to light, and double vision was observed. No urgent thirst was present from the beginning, and a fair amount of nourishment was taken.

Next evening there was vomiting of dark bilious matter, the irritability of stomach, hiccup, and cold sweating about the trunk lasting for some hours. The man's general condition seemed much improved next morning, but it did not continue many hours. The usual moaning, restlessness, and sleeplessness succeeded, and he now began to refuse wine or nourishment. The bladder became inactive, the urine having to be drawn off several times in the twenty-four hours.

In the succeeding days the pain of head and back subsided to a marked degree, but the general conditions became more and more unfavourable. The tongue was again dry and glazed, pulse increased in frequency and

weakness, and the thirst urgent. The wandering, which had been only occasional, was now perpetual. There was intense restlessness and laboured respiration, and death ensued on the evening of 11th March—fifteen days after admission to hospital.

The treatment had consisted chiefly of the various counter-irritants already alluded to, and mercury pushed to the extent of ptyalism.

On examination of the body, there was found intense congestion of the membranes of the brain, with opaque patches of the arachnoid; the brain substance comparatively healthy. The congestion was much more intense at the base, accompanied with copious deposition of lymph, and traces of purulent matter about the pons and upper portion of the medulla oblongata. The ventricles contained a considerable amount of muddy fluid. Beneath the calvarium, near the anterior end of the longitudinal sinus, there was a patch of lymphy deposit on the dura mater.

The contents of the thorax and abdomen were comparatively healthy.

Private Matthews—Meningitis.—Admitted the 16th of April with severe rigor, and the general conditions antecedent to ordinary continued fever; remaining closely covered up with the bed clothes during the day, but showing no signs of incoherency, or any remarkable or alarming symptoms until about two o'clock next morning, just after being at stool. At the time of going to stool he spoke in a natural manner to the orderly of the ward and for some minutes after returning to bed. Then suddenly he complained of intense pain of head, and almost immediately became insensible.

On being visited soon after by Assistant-Surgeon Gogarty, he was found insensible, as above described—the respiration laboured and very rapid, skin cold, pulse rapid and weak, pupils natural and sensible to light; no loss of sensation in the limbs, as evidenced by pinching. The stethoscope indicated very loud and clear respiratory murmur all over chest, masking the heart sounds, which were very feeble; his jaws were firmly locked, and there was incessant tossing about of the arms and legs. His head was immediately shaved, cupping ordered over the nape, calomel by the mouth, and turpentine enema.

Two hours later, when visited by myself and Dr. Gogarty, all the symptoms had become much aggravated, the convulsive action was accompanied with opisthotonos, lasting for a few seconds at a time; the surface of body was quite cold, pulse weak and rapid, and barely perceptible, breathing stertorous, pupils now dilated. About the lower third of thighs a few petechiæ were observed.

Various stimulants and counter-irritants were ineffectually tried—ammonia to the nostrils, sinapisms to various parts of the body, &c.

The convulsive action ceased shortly after, except that the jaws remained locked, and death ensued in a state of comparative repose at 8·30 a.m., twenty-three hours after admission to hospital.

Autopsia, horis xxvi. *post mortem.*—Body remarkably muscular and robust, cadaveric rigidity well marked, intense lividity (which began to appear directly after he had expired) about the head, face, and trunk; large vibices about the thighs.

On removing the calvarium, the dura mater was found adherent to a great extent in the course of the longitudinal sinus, and here and there a few pointed cheese-like eminences were seen on the surface of that membrane.

All the sinuses were distended with fluid blood, but the membranous congestion was not very remarkable, except at base of brain, where shreds of lymph were found about the pons and upper part of medulla oblongata.

In the chest no remarkable engorgement of lungs was observed, but all the great vessels were distended with fluid blood. An unusual amount of fluid was contained in the pericardium; the heart itself was large, and the right chambers distended with *post mortem* fibrinous clots; the valves healthy.

In the abdomen the liver was found enormously enlarged, and weighed nearly six pounds; both kidneys were enlarged and engorged, especially the left; bladder distended with fluid.

Intestines healthy.

Private Lester—Purpura maligna.—Admitted last evening, 30th April, about eight o'clock p.m., making little or no complaint, except of some pain in one leg, which afterwards extended to both limbs.

He had come off guard in the morning, and was observed to be in his usual high spirits; preparing his kit for next day's regimental inspection, &c. In the course of the day he was said to have had a rigor, but he had nothing of the kind on coming to hospital, and mentioned nothing of its having occurred.

At a late hour of the evening he was cheerful, talking to the men in the ward, and slept soundly until towards morning, when he began to ramble in his sleep, and soon after woke up complaining of severe pain in the limbs and body, but not in his head.

About seven o'clock in the morning he passed a stool under him not unknowingly, but stated that he could not control himself. A short time previously he vomited some white frothy matter, small in quantity.

Large livid purpuric spots were now seen about the lower limbs, and signs of general prostration came on; the conjunctivæ were deeply congested, the ends of the fingers and finger-nails were livid and numb; the surface of the body, though not cold, was not warm; the tongue was thickly loaded with bright yellow deposit; the pulse was scarcely perceptible, but the heart's action, examined by the stethoscope, was not correspondingly weak; there was no approach to convulsive action as in the last case. The man replied satisfactorily to questions, though rather incoherent

when left to himself. There was no pain of head throughout the case, but there was now some pain in the back of his neck, which did not extend down the spine. The prostration steadily gained ground in spite of copious stimulants and counter-irritants, and death ensued at 12.30 p.m., sixteen hours after admission to hospital

Post mortem twenty-three hours after death.—Externally—body stout and well formed; purpuric patches all over the body, more particularly over the thighs and legs.

Head.—Dura mater healthy; a slight increase in thickness and tenacity observable in arachnoid and pia mater; an unusual quantity of serous fluid at the base of the brain and in the spinal canal, the fluid flowing from the latter being of a much darker colour from an apparent admixture of blood. The substance of brain and of spinal cord healthy and free from congestion.

Chest.—Heart healthy; stained with mulberry coloured spots over its surface, and left side full of dark coloured fluid blood; one or two small dark coloured cogula in the chambers.

Lungs.—Healthy, congested.

Abdomen.—The liver pale in colour but healthy; spleen healthy; kidneys rather large, healthy; intestines healthy; bladder empty.

Private Thomas Cover—Purpura maligna.—A healthy lad, aged nineteen, less than two years enlisted, was observed to have a shivering fit on the morning of 6th May, and was sent to hospital by the sergeant of his company; the shivering fit ceased soon after he got to bed, slight headache and pain in the limbs were felt during the day, but nothing serious was observed in the case until about 6·30 p.m., when the countenance assumed a dusky pale ashen hue, and signs of prostration and drowsiness showed themselves, though not nearly to so intense a degree as in the late fatal cases. The eyes were free from congestion, the pulse slow and feeble, but the heart's action tolerably good, the limbs dry and tending to coldness, but no numbness or lividity of fingers. There was great unwillingness to reply to questions, but no incoherency; little or no pain of head or limbs, and no trace of convulsive action; the pupils natural.

A few livid patches now appeared on the thighs and legs, larger than petechiæ, but not so large as those of purpura. An involuntary alvine evacuation occurred about this time, a purgative enema having been given an hour or two before; vomiting occurred two or three times, but was not obstinate. A cup of strong tea and afterwards port wine negus were given, sinapisms were applied over the heart, and to the limbs, and friction was used.

The stomach again rejected its contents, and after a short interval brandy and milk was given very frequently in small quantities. It was retained, and a steady reaction and improvement slowly followed. Next day well-marked reaction had become established, the pulse which had

hardly numbered 70 rose to over 100, there was a good deal of general febrile action, with occasional restlessness, but no very severe pain of head; faint twitching about the angle of the mouth was observed, the tongue was slightly lateralised on protrusion, and loaded with moist whitish fur; pain was felt about the body and lower limbs, but none in the course of the spinal column; bowels not opened since yesterday; urine scanty and high coloured, and some irritability of bladder.

At midnight, on the 8th, there was great restlessness and moaning; he lay constantly on the left side with the head thrown back, and the spinal column curved to a marked degree, the face was flushed, surface of body hot and dry, and the pulse 120; double vision was also observed about this time.

His condition remained much the same during the next two or three days, but on the 11th a well-marked amendment was observed. He had several hours quiet sleep in the morning, the pulse, which had been as high as 140, fell to a little over 100, the tongue was less loaded, the arched position of body much less remarkable, and the expression of eye and countenance more natural.

He continued to improve almost uninterruptedly until the 16th, when he complained of severe pain at the vertex, the left pupil was more dilated than the right, but there had been no rigor, and marked general febrile disturbance. On the 18th there was a severe rigor about 11 o'clock a.m., following unusually severe pain of head earlier in the morning; towards evening his usual comparatively calm and comfortable condition returned, but each morning since then he has been seized with severe pain, sometimes commencing in the head, and afterwards extending to the loins and thighs, and sometimes *vice versa*. This morning, 22nd May, a prolonged shivering fit of two hours' duration occurred, ceasing about mid-day.

In the treatment of this last case, after the commencement of the reactionary fever, the administration of chlorine constituted, for a considerable time, the principal element: its employment was suggested by my friend Dr. Sinclair, who warmly advocates the views of Dr. Watson, relative to its highly valuable antiseptic properties.

Report of Five Cases. By Henry Gray Croly, F.R.C.S.I.

Case I.—A young gentleman, aged sixteen years, previously healthy, ate heartily on Saturday, 17th March, 1866, went to Castle-yard to hear the band play, and was in high spirits; went to a dancing academy on same day, and danced every dance; passed the evening out, and drank some beer, but ate no supper.

Sunday morning, March 18th.—Looked pale, and refused breakfast; said he would not go to church, but would go to meet some friends at St. Patrick's, at three o'clock, by appointment; did not go, however; had shivering fits; went up to bed, and ate no dinner; complained at night

of headache, and talked incoherently occasionally; said his throat felt sore; his stomach became irritable, which was soon followed by vomiting; conjunctivæ slightly injected; drank some tea, but vomited it almost immediately. His pulse became quick, and there was a heavy smell from him (which he noticed himself). On examining his throat it was observed to be slightly reddened. A few spots resembling purpura were remarked on his arms; and similar spots were found to exist on the abdomen and thighs. He had no bleeding from the bowels, gums, or nose; he drank some claret; said it hurt him to swallow; throat brushed with sol. of nit. of silver.

At twelve o'clock the black spots became *broad patches.* I at once sought the advice of Professor Benson, who came with me, and advised a continuance of the claret.

I remained with the patient all night. He was restless, and raved a great deal, but slept some; drank a bottle of claret.

At eight o'clock, a.m. said he felt better; drank some tea; his pulse became very rapid; temperature of body high; black spots appeared on his nose and face, and looked as if a quantity of black ink was spilled over his face; he passed no water during the night, but his bladder was not distended.

Catheter introduced. About four ounces of natural urine drawn off. He complained now of pain in his left wrist. His pulse rose rapidly to 160; temperature of body continued high. He became suddenly insensible, and died at five o'clock (duration of illness about thirty hours).

Black spots became larger, and before death were continuous on his arms, like gangrene.

Treatment—Brandy, beef-tea, and quinine injections; brandy turpentine and tr. iron by mouth.

Case II.—J. D., a fine healthy young man, aged twenty-two years, residing near James's-street Harbour, by occupation a labourer; was in excellent health, ate his breakfast heartily, and went to work as usual on Saturday, July 14, 1866. At one o'clock he returned home and complained of severe headache and pain in his back; asked for a hot drink, lay in bed, and slumbered till six o'clock; took a dose of Epsom salts by the advice of a woman in the house; he vomited the medicine, and had a slight attack in his bowels; had his feet bathed, passed a most restless night, took a little punch. At seven o'clock on Sunday morning (15th inst.), black purplish spots appeared on his nose and face—similar spots appeared on his arms; at half-past eleven o'clock he died. A medical gentleman, living in the neighbourhood, was called in on Sunday morning, but the man died ere he reached the house. (Duration of illness twenty-two and a half hours.)

Case III.—A. B., aged nineteen, a student in medicine, on Monday,

April 1, took rather violent exercise. That evening he felt tired and went to bed early, but was all right the next morning. On Wednesday, 3rd inst., he was in very good health, and ate his meals very heartily. At night he complained of some soreness in his throat, but it was all gone the next morning. On Thursday, 4th inst., he got up to his breakfast and ate it as usual; none of the family saw him that morning until he returned from hospital. While at the hospital he said that he had got an attack of influenza, and was altogether knocked up; he did not go up into the wards, but sat at the fire in the resident's room until after the morning visit. He got a dose of James's powder at hospital, which he brought home with him. He told several of his friends that he felt an *all-overness*. His uncle noticed a red spot in the corner of his right eye. He went to bed at two o'clock, and took some gruel, but vomited immediately after. At seven o'clock he took the James's powder. This put him into a great perspiration. He was very thirsty during the night, and drank some lemonade and water; he vomited frequently in the morning; he said he spent a very long, tiresome night, and slept very little. At about eleven o'clock last night he himself noticed some darkness on the upper lid of his right eye, and made the remark that he hoped his eye would not be injured. Friday, this morning, he felt pretty well while lying down, but his head *pained* if he attempted to sit up. He took some tea, but threw it up immediately after. The lid of his eye had become much darker in colour.

Friday, April 5, eleven o'clock a.m., I saw him for the first time; he was supposed to be asleep; lying on his right side; respiration rapid; pulse rapid and feeble; coldness of hand; reddish mottling on face; ecchymosed appearance of eyelid; on stripping patient I observed dark spots of irregular shape, some small like ordinary purpura, and others large and of more violet hue; pupils small. I tried to get him to speak to me, but could not succeed; he soon became restless and moaned; his friends could not at first believe he was insensible, as he spoke to his aunt a few minutes before my arrival, and asked her to sit down; bladder not distended; bowels have been moved during night; he slept none; abdomen soft; vomited frequently before I saw him. I at once pronounced the case one of those called Black Death, or "Malignant Purpura" (which I consider a better name), and informed his friends of the extreme gravity of the case, and the certainty, so far as I believed, of its fatal termination.

I applied hot jars to the feet, administered brandy and ether by the mouth, but patient could only succeed in swallowing a small quantity.

I injected brandy, ether, carb. of amm. and beef-tea in small quantities and at short intervals.

He soon worked violently in convulsions, and would have fallen out of bed but for being held; upper extremities chiefly affected about half-past

twelve o'clock, and head tossed about; left conjunctiva much congested; eyes half open; spots on legs and thighs larger and more irregular. He appeared to suffer much from spinal irritation, though at no time was the head actually thrown backwards. He sank rapidly, and died at half-past two o'clock. (Duration of illness thirty hours.)

The case was seen by Dr. Geoghegan about twelve o'clock, by Dr. Stokes about one, and by Dr. Benson at half-past one.

At Dr. Stokes' suggestion I added ten grs. of musk to *each* injection, and five drops of laudanum.

Case IV.—Anne Gill, 4, Hanbury-lane, aged two years, died Friday, April 26th, of ten hours' illness.

History.—Her father states the child was in good health until four o'clock on Thursday evening, the 25th instant, when she was attacked with vomiting and purging, convulsion set in about an hour and a-half before death, spots appeared (the left hand and *arm* only were convulsed.)

Purplish spots appeared on her face, and some on her arms, and all over the body; the spots increased in size and number after death; none of the people in attendance ever witnessed anything like the disease, but the father took it to have been the measles.

Case V.—Marianne Byrne, aged twenty-one years, always healthy and strong, resided in 48, James's-street, was attacked on Tuesday night (at half-past eight o'clock), 13th May, with severe rigors, and coldness of the surface of her body; she vomited repeatedly a slimy yellow matter, the vomiting continued until four o'clock in the morning. She had one motion from the bowels during the night.

Diarrhea then set in, and the bowels moved at least ten times. All day, Wednesday, 14th inst., she suffered from severe headache and pain in her back; blue spots, which soon became black, appeared on Wednesday on her legs; surface became colder; she died in *convulsions*, with the head *forcibly thrown back, at twelve o'clock on Wednesday night.* (Duration of illness twenty-eight hours.)

Shortly before death black spots appeared on her arms.

There were some on her face also.

Report of three Cases which occurred in Meath Hospital, under the care of Drs. Stokes and Hudson.

Case I.—Commencing with the ordinary symptoms of a pyrexial attack, these followed on the second day by unusual prostration, the occurrence of head symptoms, and the appearance of a peculiar eruption on the extremities.

Much muttering, delirium, stupor, and sleeplessness; gradual sinking; death on the morning of the seventh day.

Post mortem.—Cerebral arachnitis; no apparent lesion of the spinal cord.

Mary Lewis, aged twenty-three, a servant, living in South King-street, had been in bad health for some months past. This attributable to hard work and indifferent food. Catamenia regular.

On Wednesday, January 30, 1867, she took ill, the first symptoms being a severe pain in the *right* leg. This was soon followed by headache and rigors. The same evening she had an attack of *epistaxis*. Next day their appeared on the legs and arms numerous spots somewhat resembling those of purpura hemorrhagica.

She was admitted Friday evening, February 1.

Saturday, February 2 (fourth day of her illness).—When seen she had the appearance of just wakening from a heavy drunken slumber. The face was dusky, stupid-looking, the eyes suffused and dull. The skin generally resembled that of a patient in typhus fever. She complained of great headache, principally in frontal region. Required to be roused before she answered questions; general hyperesthesia; much muttering; delirium at times; partial retraction of the head.

Over the chest the percussion and auscultatory sounds were perfectly normal. The heart's action was occasionally irregular and very weak; there was not any murmur.

The tongue was brown, but moist; there was considerable thirst, no vomiting, appetite bad, but she took nourishment well. Bowels rather confined.

Eruption.—On the legs and arms were found spots of a dark purple colour, and of different sizes; all of them accurately defined and circumscribed, also slightly elevated; perfectly indelible on pressure, and in places covered with tiny papillæ, or even vesicles. The largest of these spots was about the size of a sixpence. They were confined to the extremities, with the exception of one or two small ones on the face, and many over the gluteal region.

Besides these spots there was noticed on the chest a mottling of the skin, almost passing into the form of petechiæ in places; besides a dusky hue like that of typhus.

On this morning the pulse was 84, full; respiration 28; and the temperature 99°·6.

The treatment pursued was as follows:—

Wine, ʒxij., oranges, chicken-broth.

℞ Potassæ chlorat. gr. 60.
Sodæ bicarb. gr. 60.
Decoct. cinchon. ʒvj.
ʒj. cum. succ. limonis ter die sumend.

Sunday, 5th day.—In much the same state—restlessness and delirium. Menstrual flow set in at night, about the regular time.

Monday, 6th day.—Pulse 96; respiration 63; temperature not taken. Eruption more raised, and vesicular appearance better marked; less hyperesthesia; hardly conscious; continue treatment.

Evening.—Pulse, 116; respiration, 48; temperature, 102°·9. Sleeping, but very delirious. From this time she sank rapidly, and died calmly at seven a.m., next morning.

Autopsy—Four and a-half hours after death.—Spots unchanged in appearance. Over one spot on the *right* leg a large vesicle had formed, containing a considerable quantity of serous fluid. It will be remembered that it was in this, the *right* leg, that the pain first set in at the beginning of the patient's illness. The cuticle was not stained by the extravasation, as it was found normal in colour on raising it from off one of the spots. On the chest some brownish petechiæ were visible. The head was less retracted than during life, and there was no rigidity of the muscles of the neck.

On removing the brain, the arachnoid covering Willis's circle was found thickened and inflamed. In the sub-arachnoid spaces, and along the course of the chief vessels, small depositions of lymph were noticed. The pia mater was much congested.

The spinal cord throughout was healthy, nor was there any lesion of its membrane.

The thorax and abdomen were not examined.

Case II.—Setting in with pyrexial symptoms; almost immediate prostration; delirium; hyperesthesia; stupor; death sixty-four hours from first seizure.

Mary Jane Commerford, aged thirteen, daughter to a nurse in the hospital; always enjoyed moderately good health; had not menstruated.

Took ill at seven a.m., Wednesday, April 17th, 1867, the symptoms being shivering, headache, pains, great thirst, nausea, and frequent vomiting of a dark green substance. These were soon followed by great depression. During the day she became very restless, spoke but little, and towards evening began to wander.

Early next morning she was found delirious, and very restless, with great congestion about the face. Leeching at the mastoid process relieved her. At half-past nine a.m. she was almost unconscious, answering no question, nor taking any notice when spoken to.

The face was much congested; the eyes like those of typhus, except that the pupils were dilated; there was no noticeable strabismus; the skin was dusky; on the face were one or two small spots, many on legs and arms.

These spots were small, smooth, and *not* raised—though afterwards some became slightly elevated towards their centres.

There was no vesicular appearance, as in Case I. Each spot had a well-defined margin; they were indelible on pressure.

When touched, she moved restlessly, but made no complaint of pain.

No physical signs were detected on examination of the chest and abdomen. The heart was very weak. There was constant vomiting of a greenish fluid, transparent, but semi-viscid. The tongue was covered with a creamy white fur. She had eaten nothing since the first attack.

Pulse, 124; resp., 44; temp., 98°·2 only.

In the evening in the same state; spots rather larger. Has had two injections of beef-tea, with quinine; also small doses of chlorate of potash in porter, by the mouth, but this, after a short time, she refused.

Friday, third day.—More conscious this morning; can be roused by loud speaking; slept very indifferently; vomiting still continues; motions from the bowels somewhat greenish; passes water well, it is light coloured, and on inspection seems free from anything abnormal.

Pulse, 104; resp., 24; temp., 96°·7.

Evening.—Vomiting ceased; takes some notice if roused; not so restless; if left alone falls into a heavy sleep, with loud stertorous breathing.

Pulse, 80; resp., 24; temp., 98°·6.

At ten p.m., she rose from bed, walked about the ward, and spoke to her mother. After a short time her mind began to wander. She fancied she saw some one sitting at the fire beside her mother (who was alone). Heavy stertorous breathing came on, and without rallying she died at eleven p.m., after sixty-four hours' illness.

No *post mortem* examination.

Case III.—Beginning with head symptoms; illness attributed to fright. Much stupor. Pustular eruption on legs, red spots on arms. State improved by stimulants. Range of temperature resembling that of typhus. At present (Saturday, May 11, eighteenth day) almost convalescent.

Mary Maguire, aged twenty-six, a nurse in Mercer's Hospital (only eleven weeks in this situation), ill since Wednesday, April 24, 1867, on which day she was much frightened by a patient who was brought in in "delirium tremens." Her head became immediately affected. She had rigors and green vomiting. Soon afterwards she fell into a drowsy state, neither speaking nor answering when spoken to. On Saturday night a rash appeared on the legs. The trunk was almost free from this. She was admitted Sunday evening, April 28.

Monday, sixth day.—In a drowsy stupid state, eyes closed; slight converging strabismus; pupils dilated. No retraction of the head; slight hyperesthesia. No nausea; no vomiting; bowels confined; tongue (protruding towards the right side) covered with a dirty creamy fur.

Passes water at times involuntarily. Heart sounds weak, but regular; no chest signs.

Eruption.—Round the mouth was noticed a complete ring of herpetic vesicles. On the chest two small pustules were seen. On the legs were many of these—some of them just commencing to form, others withering and dried up. Each was surrounded by an inflammatory areola. They closely resembled the rash of varioloida. On the arms, especially near the elbows, there were seen large reddish spots, slightly elevated, and with sharply defined margins, the counterparts of the spots in case I., except in colour, and in their being delible on pressure.

Treatment.—Abundance of nourishment, stimulants in moderation, and full doses of chlorate of potash.

Tuesday, 7th day.—Pulse, 104; respiration, 30; temperature, 100°·3. More conscious; spots on legs fully out, also well-marked on arms.

Wednesday, 8th day.—Pulse, 104; respiration, 28; temperature, 100°·2.

Thursday, 9th day.—Pulse, 112; temperature, 100°·8.

Friday, 10th day.—Pulse, 112; respiration, 28; temperature, 100°·3. Much better; spots fading; quite conscious.

Saturday, 11th day.—Pulse, 120; respiration, 24; temperature, 101°·7. Spots nearly gone; no pustules on legs visible; sleeps well.

Sunday, 12th day.—Pulse, 120; respiration, 24; temperature, 98°·2.

Monday, 13th day.—Pulse, 104; respiration, 24; temperature, 98°·3.

Tuesday, 14th day.—Pulse, 120; respiration, 26; temperature, 102°·4.

Wednesday, 15th day.—Pulse, 128; respiration, 30; temperature, 102°·9. Not so well; rigors; skin much mottled; pupils greatly dilated. The shiverings passed off in an hour or so, and she became much better.

Thursday, 16th day.—Pulse, 96; respiration, 22; temperature, 97°·9.

Friday, 17th day.—Pulse, 106; respiration, 24; temperature, 98°·9.

Saturday, 18th day.—Pulse, 108; respiration, 24; temperature, 98°·0.

Ordered wine, ℥x.

P.S.—This patient shortly afterwards left hospital quite convalescent.

The following case has great interest in connexion with the complication with measles, which disease supervened in the course of the purpuric fever, and seemed to suspend it. It is given in the words of the mother of the child:—

On Friday, the 8th of last March, my little daughter Mabel, aged six and a-half years, was suddenly seized with headache, shivering, and pains in the side and shoulder. She had always been a remarkably healthy child, never having had any illness, but I had observed, for some months, that she had been looking ill and pale, particularly so for a

few days before her illness, and her skin had a dark shade through it, as if dirty. On this day she seemed to be quite well; spent two hours at her lessons, and ate her dinner at two o'clock with a good appetite. It was about four o'clock in the afternoon when she complained. She was put to bed, and given warm drink, and as her little brother had measles at the time, we thought she was taking them. During the night her stomach was sick six times, and each time seemed to weaken her; she also wandered a little in her sleep.

9th.—On Saturday morning, when her father saw her, he observed spots of purpura about her eyes, forehead, and chin; a leaden-coloured appearance of the entire face, particularly dark and sunken round the eyes, with an appearance of blood under the membrane at the angles of the mouth, of a lighter shade than the other spots. The dark purple spots were scattered over the back, thighs, legs, and feet; those on the lower extremities were larger and more irregular than those on the face—some of them like drops or splashes of ink—while those on the face were more like grains of shot. Her father at once ordered her as much hot sherry and water as she could take, and mustard over the stomach, to stop the sickness, which, with headache, continued. Dr. M'Dowel saw her at eleven o'clock, and prescribed stimulants and mustard-plaster to the stomach. She now complained of pain in the back of her neck, in addition to the headache and sickness. Dr. Stokes saw her at half-past three in the afternoon, and also ordered stimulants. From this hour till six o'clock she was very weak, and became very restless, throwing her head violently about, and arching her back; legs and feet cold. Her father found the heart's action very weak; pulse scarcely to be felt; he ordered immediately a strong mustard-poultice over the region of the heart, hot stupes to the legs, and gave her an enema of chicken-broth and brandy; after this she became stronger, and when Dr. M'Dowel came late that night he found her flushed and feverish. The enemas were continued every three hours, sometimes adding Battley's sed. sol.

10th, Sunday.—Drs. Stokes and M'Dowel saw her at nine. Observed retraction of the neck; very sick all day, and great pain in back of the neck.

11th.—On Monday morning, while Dr. Stokes was in the house, the knuckles of both hands suddenly swelled, and became of a pinkish colour, and painful. She was given prussic acid draught, which stopped the constant sickness.

12th, Tuesday.—The purple spots were paler, but some new ones appeared on her feet and ankles, which were swollen.

13th, Wednesday.—Very feverish and sleepy, and coughed a good deal.

14th, Thursday.—Measles came out all over her; she seemed easier.

15th, Friday.—Measles still very red; during the night very restless, and on

16th, Saturday morning, several new purple spots appeared on the feet, and the measles quite faded. Dr. Stokes saw her this afternoon, the ninth day of her illness. He ordered a great deal of nourishment, wine, &c.

17th, Sunday.—Continued much the same.

18th, Monday.—Great headache; the left eye squinting. Dr. Stokes saw her. Stopped giving wine. For several days after this she lay in much the same state, very feverish, and sleeping almost constantly. Dr. M'Dowel, who saw her constantly, finding very little change from day to day.

25th.—On Monday, the eighteenth day of her illness, an eruption of "Shingles" came out on her back, and increased till it was very nearly round the body, being worse on the back and chest; some of the spots very sore, and continuing so for several days.

28th, Thursday.—Great pain in the neck, and paralysis of one side of the face; the left eye staring. Iodine applied to back of neck and front of ears.

30th.—She was very restless; no sleep at night; often shrieking out as if in pain.

April 4th, Thursday.—Sickness of stomach; very weak.

5th, Friday.—Again sick stomach. Drs. Stokes and M'Dowel saw her. She slept badly, and had a continual painful kind of moan, with occasional sharp screams.

6th.—Up to this, from the beginning of her illness, she knew every one when spoken to, and answered every question quite correctly, often asking the hour, day of the week, and month, and apparently quite conscious.

8th, Monday.—She was very nervous and restless.

9th, Tuesday.—Carried on a mattress into another room quite unconscious of the movement; her stomach very sick that night, then lay so quiet that her father went over to examine her, and found her very low and weak; very weak pulse. Gave her brandy, and applied hot stupes to legs and feet, which it was almost impossible to keep warm.

10th, Wednesday.—Again sick stomach; no sleep; incessant moaning, and the eyes kept constantly twitching and squinting; the head very much thrown back; extremities cold.

11th.—On Thursday morning, the thirty-fifth day of her illness, her father shaved and blistered the top of her head, then had the whole head shaved and blistered.

Drs. Stokes and M'Dowel saw her and ordered calomel. About noon she appeared relieved; the eyes better, and she was quieter; that night she was again very weak.

13th, Saturday.—Small boils came out on the back and chest; she was very restless and nervous for several days, often crying for hours, and only soothed by her sisters singing to her.

21st.—A large abscess on the shoulder was opened; still restless and nervous.

24th.—A second abscess opened. She had several smaller ones, which gave her great pain on the head, back, and hip.

26th.—From about this day there appeared to be a very slow but gradual improvement. She was quite sensible and correct in everything she said, and knew everyone, but did not remember anything of her illness.

May 8th.—She was lifted on to a small bed on castors, and was wheeled into another room, and back again at night; this has been done every day since, and she enjoys the change, but is still extremely nervous at being touched or moved.

22nd.—She remembers nothing further back than about ten days ago, which would be about the sixty-fifth day of her illness, but her memory is perfect as to everything before she was taken ill. She has now a good appetite, sleeps well at night, and enjoys her books and toys; her eyes are quite straight, also her mouth, except if she cries it is a little drawn down at one side.

I forgot to mention that during the whole of her illness, she continually complained of shooting pains in almost every part of the body, particularly in the forehead.

Dr. ATTHILL read the following:—

A. G., an infant at the breast, aged nine months, was attacked on the 14th March with purging and vomiting, accompanied by heat of skin and great restlessness. On the evening of the same day the mother observed a red spot about one inch above the inner ankle of right leg, this was slightly elevated, and, in the course of a couple of hours, became of a dark purple colour; numerous similar spots, but of smaller size, appeared in rapid succession on both lower and upper extremities, while, at a later period, three well-marked spots came out on the upper lip to the right of the mesial line. I saw the child at two o'clock p.m. on the following day (the 15th). The upper and lower extremities were then thickly covered with black spots, the majority were about the size of a split pea; some again very small, others much larger; among the latter was the one first observed on the inside of the right leg, which was as large as a fourpenny-piece; another of immense size was situated on the back of the left leg, two inches above the heel, it was oval in shape, being one and a-half inches in length, and three quarters of an inch in width. There were also some spots on the buttock, but the trunk and neck were perfectly free from them.

The child was pallid; the surface of the skin was, to the touch, apparently of the natural temperature; the eye appeared sunken, but

otherwise the face did not present any remarkable appearance; he seemed, however, to be much distressed, was very restless, constantly whining and dragging at the mother's breast.

Vomiting had ceased, but the diarrhea continued, the evacuations being pale and watery. There was not at this period the slightest symptoms of derangement of the nervous system.

Looking at the case as one of aggravated blood-poisoning, I put the child on the following mixture:—

Chloratis potassæ, gr. 30.
Tinct. ferri perchloridi, M. 30.
Sp. chloroformii, M. 30.
Aquæ, ʒiv.

A teaspoonful to be given every hour. Also, with the view of checking the diarrhea, I ordered two grains of the powder of chalk with opium, to be administered every three hours. On the following morning the child's condition had somewhat improved, the diarrhea had ceased. No fresh spots had appeared, and those already in existence were unchanged in appearance. On the 17th, the general condition was much as before, but the centre of each spot now assumed that sunken silvery appearance which has been observed in many cases of this peculiar disease. I did not in any way vary the treatment. Up to this time there was not any symptom indicating a lesion of the nervous system, but on the 19th March, that is, on the sixth day from the first appearance of the spots, the mother remarked that the child had lost in a great degree the use of the right arm and leg On examining the limb I found this to be correct. The limbs were not completely paralysed, but the power of moving them was much impaired; there was also slight œdema of the right arm, with increased sensibility of the affected side, manifested by the child's crying when the affected limbs were touched, or if laid in the cradle on that side. From this period the child slowly but steadily improved. At the end of a fortnight it had regained the use of its limbs, and the spots, with the exception of the large one on the back of the left leg, had nearly disappeared. The mischief here, however, was too great to be removed by the process of absorption. Inflammation set in round its edges, and a slough, exactly similar in appearance to that caused by a superficial burn, was thrown off, leaving a large sore, which gradually healed up. The child recovered perfectly. This case was also seen by Drs. Head and Bennett.

I look on this case as one of much interest, bearing as it does on the disputed question—whether the epidemic of cerebro-spinal meningitis, and that marked by these black spots are separate diseases or different manifestations of the same poison? This case exhibited from the very commencement, in a marked manner, the black eruption, while the

cerebro-spinal symptoms manifested themselves at a much later period, thus supporting, I think, the opinion that the diseases are identical.

Dr. Hayden read the following:—

Case I.—Miss C., aged nineteen, of general good health, but subject to menorrhagia and occasional headache, was suddenly taken ill with acute pain in the head, accompanied with a feeling of tenderness all over the body, on Wednesday, October 24th, 1866. The pain having become more severe, she was visited within a few hours after her first illness by a medical man in the neighbourhood. She was then pale; skin rather cool; pulse regular and not remarkably quick; slight sickness of stomach, for which an effervescing mixture was given. In the course of that night the headache became still more urgent, and on the following morning the face was flushed, and other symptoms of high febrile action were present. Six leeches were applied behind the ears, and six grains of calomel were given at once.

I saw the patient in consultation at a quarter past one p.m., on the 27th. The face was then pale; pupils contracted, and eyes averted from the light, which could not be borne. There was constant moaning and complaint of pain in the vertex and back of the head. Pulse 66, labouring and irregular. There was a murmur with the first sound of the heart, audible at the base. The head was shaved and blistered, and subsequently dressed with mercurial ointment, gr. i. of calomel was given every hour, and a warm foot-bath, containing mustard, to be frequently repeated. I saw her again at half-past seven that evening. The pulse was then 84 and full; respiration rather laboured; tongue moist; skin warm and moist; no cutaneous hyperesthesia or sickness of stomach; bowels and kidneys acting regularly; mercurial inunction to be continued.

October 28th.—I visited the patient at ten o'clock this morning, and found her much improved; she had slept several hours in the course of the night; pulse 90, regular, and moderately full. No cardiac murmur was then to be heard; she lay with the head retracted, and avoided light; there was partial ptosis of the right eye. A number of dark blotches resembling vibices, and not affected by pressure, had appeared upon the hands, arms, and legs, since last visit.

29th.—Diarrhea of a biliary character, and slight pain in the head last night; the latter had ceased at the time of visit, but the skin was hot; the conjunctivæ injected; the pulse 102; and a systolic murmur was again audible at the base of the heart.

No urine had been passed since six o'clock p.m. on the preceding day; patient menstruating. The calomel was stopped, and ʒss. of mercurial ointment was directed to be rubbed into the groins and axillæ alternately, twice a day. A pill consisting of gr. ss. of powder of digitatis, and gr.

iii. of compound squill pill was ordered to be given three times daily; simple chalk mixture to check the diarrhea; and warm jars to be applied to the feet.

30th.—Ten a.m., patient much better; slept last night; pulse 96; skin cool; urine passed in large quantity during the night; conjunctivæ no longer injected. Finding the patient so much improved I took my leave, deeming it unnecessary to continue my attendance, and leaving her in charge of her ordinary medical adviser. On the afternoon of that day (October 30th), at six o'clock, she suddenly became alarmingly ill; "rattles" were heard in the throat, she became pulseless and cold, but continued to be conscious. Within a few minutes she was visited by the medical man in charge of her, and died in his presence shortly after his arrival, without convulsions, and apparently of syncope.

Thus, this girl's illness commenced with pain in the head, sickness of stomach, and high fever. Four days subsequently there were contraction of the pupils and photophobia, injection of the conjunctivæ, ptosis, retraction of the head, and dark ecchymosed blotches on the surface. There can be no doubt, therefore, that the cerebro-spinal symptoms preceded the cutaneous, and in this case assumed the importance of primary manifestations.

Case II.—Miss C., aged nineteen, residing a short distance from Dublin, was attacked with bilious vomiting on getting out of bed on Tuesday morning, April 23rd, 1867. On the evening of that day she was seen by Dr. Monks, who found her slightly incoherent, and the entire surface of the upper and lower limbs mottled with a dark red rash, interspersed with a few unhealthy looking vesicles. A blister was applied to the nape of the neck, and gr. v. of sulphate of quinine were given every fourth hour. At seven o'clock the following morning Dr. Monks was hastily summoned to visit his patient, and found the red spots now become dark and much larger, and the patient in a state of alarming prostration. On the preceding evening he had expressed suspicions as to the nature of the affection, but he now fully diagnosed it as an example of so-called "Black Death."

I saw the patient, in consultation, at ten o'clock on the morning of the 24th. She was then unconscious; pupils widely dilated and insensible to light; veins of scalp distended; loss of power of deglutition. Liquids introduced into the mouth immediately flowed out. She was remarkably restless, and struggled to get out of bed. The feet, legs, thighs, and buttocks were sparsely covered with dark spots of irregular figure, and varying in size from that of a grain of shot to a shilling-piece. These spots were in colour nearly black, slightly elevated, and not affected by pressure. Amongst these were dispersed, at long intervals, a few small undeveloped pustules.

The eruption was likewise visible on the hands, arms, and neck, and in a much less degree on the face and trunk. The general surface of the skin was of a dusky hue, and cold. Pulse 138, and weak, but regular; respiration unaltered; evacuations involuntary. The head was directed to be shaved and blistered, and then dressed with strong mercurial ointment.

Œnemata of sulphuric ether and spirit of turpentine—of each ʒi., with ʒss. of brandy in ʒii. of strong beef-tea, to be given every second hour; the quinine to be continued, and small quantities of brandy given by the mouth at intervals.

On the evening of that day, when seen by Dr. Monks, she was conscious; the pupils were less dilated, and fluids were swallowed readily.

On the morning of the 25th a still further improvement had taken place, but in the afternoon the patient had lost ground, and was much weaker, and at one o'clock that night, after a convulsive spasm, she died, evidently of asthenia.

It was subsequently discovered that the nurse in charge of the patient, conceiving herself entitled to have an opinion, and in the exercise of it, considering that the stimulants had disagreed with the patient, discontinued them, contrary to orders after the last professional visit. To this circumstance the sudden unfavourable change in the patient's condition is probably due.

Opposite the window of the room in which this girl slept, and about eight yards distant from it, was a cow-shed, in which cattle were fattened for the market, and in the room itself the air was disagreeable and oppressive.

In estimating the diagnostic value of symptoms, it is necessary to distinguish primary or essential, from secondary or accessory phenomena; and in making this distinction, the order of succession, and the pathological relationship of the symptoms should be considered.

Judged by this rule, I feel bound to say that the cases which have come under my observation tend to support the opinion of Dr. Gordon, that the disease which has recently appeared in this country, and received the provisional designation of "Black Death," is only cerebro-spinal meningitis, with the accessory manifestation of cutaneous ecchymoses and eruption. I grant that there is great difficulty in explaining the genetic connexion between the pathological and vital conditions indicated by these two groups of symptoms—namely, an inflammatory organic lesion of the cerebro-spinal meninges, and deterioration of the blood.

Short notes of two cases, under the care of Mr. Darby, of Bray:—

Case I.—Margaret Brady, aged fifteen years, admitted to the Rathdown Hospital, at two o'clock p.m., 22nd March, 1867, reported as

having been in perfect health up to the evening of 19th inst., when she was suddenly attacked by a rigor, followed by a convulsive fit, after which she totally lost her hearing, complained of headache, and vomited.

On admission her skin was hot; pulse quick; tongue clean, but fringed with apthous ulcers, as if the edges had been bitten; her eyes were bright, watchful, and wild, pupils medium size, acted slowly under the influence of strong light; her head drawn sharply back upon the neck; was constantly muttering, moaning, and grinding her teeth. She cried out whenever any part of the surface of her body or limbs was touched. Spots of a dark colour, nearly black, of varied form and size, were found on the fore-arms and legs, resembling, for the most part, the marks of an itch or other papular eruption that had recently died away. There was also an ecchymosed patch on the right thigh. For two days after admission fresh spots continued to appear, and some of the old ones began to fade to a greenish-yellow, and some to disappear altogether.

On the 27th all the spots were fading.

On the 1st April there was not a trace of any eruption or discolouration on the skin; other symptoms continued without any marked alteration. The girl wasted, sunk gradually, and died of exhaustion on 23rd April, 1867.

The *post mortem* revealed lymph on the surface of the pons varolii and medulla oblongata; about four ounces serous fluid in the ventricles extended into the spinal canal. The membranes of the cord were much congested.

Case II.—Thomas Carroll, aged ten years, was admitted to hospital, from the workhouse school, on the 11th April, 1867. Reported not to have eaten his food well on the previous day, and spat up a little blood; on rising from bed this morning some red (blood) spots were observed on his skin, he spat up more blood, and was consequently sent to hospital. I found him at noon lying quietly in bed, not complaining; his pulse was 90; tongue furred; gums bleeding; skin cool. Face, limbs, and trunk were thickly dotted with black spots, elevated slightly, and varying in size from a grain of shot to that of a pea. Two ecchymosed patches—one the size of a shilling, the other as large as a penny-piece—were observed on his legs; his belly tumid. Ordered an oil and turpentine draught immediately, which produced a copious, tar-like stool, free from smell. Lemon juice was freely given, and ten drop doses of spirits of turpentine every fourth hour. This treatment, with nourishing diet, was continued up to 22nd (eleven days), when he was discharged cured.

I have thought that some analogy existed between these two cases, as some of the spots on the skin in either case bore a strong resemblance to the other—the local inflammation in the case of Brady being altogether absent in Carroll, forms the chief feature of difference between them, and

as that is a point in the prevailing epidemic disease upon which a difference of opinion exists in the profession, I place the case in juxta-position.

The following letter was read from Dr. Crooke, of Macroom:—

"May 6th, 1867.

"Dear Dr. Belcher,—I have read with great interest your case in *The Medical Press and Circular* of May 1st. . . . I entertain no doubt that it was a case of fever. I have attended in the Fever Hospital here, during the past twelve months, six cases closely resembling it in most of the details. I may state that I treat in this hospital an average number of about twenty throughout the year; they are chiefly household servants, male and female, sent in from a wide area of country. They are usually well fed and nourished. If a change is made in Cullen's aphorism thus: "Initio febris gastricus, progressu et versus finem typhus," it will describe this form of fever. The first case of this class which I treated last year occurred in the month of February, and bore a resemblance to yours, so remarkable that I will give you an extract from my notes of it:—S. W., aged twenty, nursery governess to Lady ——, a tall fair German, of considerable personal attractions, and of nervous temperament. Her illness, as in your case, was caused by exposure to cold. During the first ten days she suffered from gastric fever with bilious vomiting; pulse not above 90; there was considerable prostration of strength, slight headache, and heavy pains in the back and thighs; excessive sleeplessness; thirst; tongue red at the edges, foul occasionally in the centre, and generally moist. At the end of ten days there was a complete remission for thirty-six hours, and I thought she was going to get well, but a different train of symptoms followed. Sleeplessness returned, and with it delirium appeared for the first time, then followed jactitation of the limbs, picking of the bed-clothes, tympanitis, involuntary evacuations, coma, and death ensued on the eighth day of the second stage. The duration of her illness was thus eighteen days, about the same as in your case. On the day following her death her countenance became of a livid, almost purple colour; her stomach became enormously distended on the next day; her face was almost quite black; there was a putrid odour in the room, and, as it was evident that decomposition was advancing rapidly, I had her removed to her grave without further delay. I have notes of five other cases treated during the past year, two males, and three females—all were young, ages 16, 19, 20, 20, 22 years. The gastric stage varied in duration from seven to ten days; the typhoid stage from nine to fifteen days—all recovered. In each of these five cases the attacks were distinctly traceable to contagion, pure typhus having existed in each house from which they were brought. In three of these cases an abundant eruption of petechiæ occurred when the typhoid

symptoms occurred. Do you not think that the disease, termed by Dr. Mayne and others 'cerebro-spinal arachnitis,' is a specific fever of a malignant character, and that the inflammation of the membranes which invest the brain and spinal marrow, is one of the effects of a poisoned and morbid condition of the blood, and not the essence of the disease? There is nothing new in specific fever terminating fatally within twenty-four hours; when malignant scarlatina prevailed it was not uncommon to meet cases which succumbed to the disease within this period. I witnessed at least twelve such, and heard of many others. The leading symptoms were bilious vomiting, low delirium, rapid prostration, coma, and death. The term "Black Death" may well have been applied to some of these cases; for, within twenty-four hours after dissolution, the countenance assumed a dark purple hue, and decomposition set in so rapidly that the remains had to be hurried from the view of the horror-struck relatives. I shall never forget one dreadful instance of this kind which happened in my neighbourhood, when a most promising young man of nineteen was carried off by this dire disease in about eighteen hours from its first invasion. I am no believer in this new 'sensation tale,' that the 'Black Death' of the 'middle ages' has reappeared. . . . I am, Sir, yours, &c.,

"Warren Crooke."

At the meeting of the Medical Society on the evening of Friday, the 24th May,

The President, Dr. Stokes, in the Chair.

Dr. Herbert said he was present in consequence of a request conveyed to him by Dr. Guinness, to report some cases of black death alleged to have occurred in the 5th Regiment, during the service of its late surgeon, Dr. Barclay, who had joined the 54th Regiment. He regretted to say that he knew nothing whatever of the cases alleged to have occurred in that regiment. He had heard of some cases of fever which assumed the encephalous form, accompanied by spots of typhus fever, but these were not cases of black death—at least, he did not so consider them. There had been no official report of the cases, but he had written to Dr. Barclay on the subject, and had not yet received an answer. There was one case of black death under treatment in the Hospital of the 5th Regiment. This case occurred during his absence, and he had received the notes of the case taken by Dr. Skene. The soldier, who had been previously a healthy man, was admitted to hospital, complaining of headache and rigors. Some time after admission he vomited. His pulse was at first very frequent, amounting to 130 or 140 beats in a minute. The extremities were cold; his tongue was cold, and clayey white at the edges, and a dusky brown in the centre. He complained of great thirst, and

pain in the head. About eighteen or twenty hours after admission, he complained of intense pain in the right eyeball; sickness of stomach took place; it was treated with soda water and milk, and a mustard-blister was applied to the epigastrium. There were symptoms of encephalitis, and twenty-four hours after admission, spots of the size of a sixpenny-piece appeared over his body, and in a few hours increased to the size of a shilling, and in three or four hours afterwards, to the size of half-a-crown. He was treated with stimulants—beef-tea enemeta, &c., and was reported by Dr. Skene to be progressing well. Since Dr. Skene had gone on leave of absence, mortification of both feet had set in—one patch, as large as an ordinary lozenge box, being over the ball of the right toe, and on the opposite foot there was a mortified patch under the ball of the little toe, about the size of half-a-crown. These spots of superficial mortification had been rubbed with a stimulating embrocation, and the whole depth of the integuments had sloughed away.

Dr. Law said he desired to bring under the notice of the Society some cases of what was called cerebro-spinal meningitis. The peculiar phenomena were, remarkable prostration of strength, with violent pain of the head, and pain proceeding in the direction of the nerves of the spine across the body, a sense of construction extending down the arms and legs, reminding him strongly of the complaints that were made by the patients in the fever of 1848, an aggravation of those symptoms that the French call malaise, fidgetiness, and the patients commonly complained of pains in the bones. He brought forward a group of ten cases before the Association, and he mentioned at the time that he had no opportunity, inasmuch as there was no fatal case of ascertaining what the lesion was. At that time he proposed the question, what was the real pathology of this disease? Was it essentially an affection of the spinal system, or was it to be looked on as involving the nervous system? In the end of last June a case was brought into Sir Patrick Dun's Hospital. It was a young female, aged twelve years. She had been bathing the day before, and gone to bed perfectly well, but awoke in the night screaming with violent pain of the head and sickness of the stomach. The pain in the head and sickness of stomach, and vomiting continued until she was brought into the hospital at four o'clock on the next day. She was then in a state of complete collapse, the pulse scarcely to be felt, the body perfectly livid, a deep blue stained colour, with a remarkable eruption especially on the left leg. There were spots, maculæ varying in size. First of all there was a general dark colour of the whole body, and then there were patches of ecchymosis along the limbs with elevated spots, and a remarkable tubercle on one leg. The vomiting continued for some time; she had remarkable hyperesthenia, extreme restlessness, could scarcely be kept in bed, worked strongly in convulsions, and especially on the left side. However, the convulsions were choreac movements rather than epileptic

convulsions. The only thing that could be done was to sustain her as best they could. Everything which they gave her was rejected, and enemata of brandy and beef-tea were the only means by which her strength could be sustained. They applied belladonna down the back, and as soon as she could swallow she got pills consisting of mercury, quinine, and extract of belladonna. The giving of belladonna in this case was suggested by an interesting case of Dr. Byrne's, where it was found most effective in relieving tetanus, and he (Dr. Law) was astonished to see how greatly the convulsions ceased on taking it for a short time. On the second day of illness the head of the girl was violently retracted, she complained of a most agonizing pain in the head, especially over the occiput. A blister was applied here, and afforded her a little relief, but not much. On the fifth day after admission she complained of the most violent aggravation of the headache, and this was shortly followed by copious epistaxis, and from that time forward her head was completely relieved. They gave her mercurials, the mouth was slightly affected, and on the seventh day she began to improve, and accordingly as she improved the eruption on the extremities began to fade, and on the fourteenth day she was pronounced convalescent. The head was still retracted, producing a peculiar appearance. No matter in what direction she placed herself the head was rigidly fixed, and the muscles would not admit of any motion. The case went on, she improved up to the end of the month, when he lost sight of her. She then became Dr. H. Kennedy's patient, and he told him that when she came under his care she had sickness of the stomach. He was surprised to hear that the child had relapsed, and on inquiry was told by the nurse that she had taken something which disagreed with her. Now, he (Dr. Law) thought this was a connecting link between these extraordinary cases that occurred as the first epidemic, and those that afterwards appeared and were called the black death. It was better that that name should be given up. He thought it an unfortunate name, for it led people to expect that this disease would be something like the plague. He should mention that a case similar exactly to the one he spoke of had come under the observation of Dr. Byrne, with this exception, that his case was of a worse type, for the patient died. Dr. Byrne thought it at first a case of cholera, and he (Dr. Law) should have thought so too, although they had not the sunken eye and whispering voice of cholera. Many of these cases of cerebro-spinal arachnitis were mistaken for cholera, and it was a remarkable fact that it had always followed in the wake of cholera.

Dr. Aquilla Smith observed that some of the gentlemen who had communicated cases of this disease had spoken of it as "black death." The members of the profession generally were well aware of the great alarm which had been caused in the city in consequence of this name having been given to this form of fever; and it appeared to him desirable that

there should be some expression of opinion on the part of the Society to repudiate the term "black death" as a name for this disease. Every one knew that the black death of the middle ages was a true buboe plague, and had no similarity to the form of disease which they were now considering. He was very glad that Dr. Lyons had pleaded guilty to having given the disease a very bad name. It would be in the recollection of the meeting that Dr. Lyons suggested that it should be called "black fever." He objected to that name also—the word "black" being calculated to cause much unnecessary alarm. From what he had heard of the nature of the disease, he should be inclined to term it malignant petechial fever.

The PRESIDENT said the meeting was indebted to Dr. Smith for his observations. The term black death was an improper term. The black death of the middle ages was nothing but the plague of the Levant that had spread over Europe. Dr. Lyons had given up that name, and he was quite sure it would be the feeling of the meeting that the name should be forgotten. It was not very easy to invent a name for this disease. It was his intention in the concluding observations which he would make that evening, to propose the name of "malignant purpuric fever." Still, no doubt, it was a special and most peculiar disease, and a disease which, although it had been observed in other countries, and long observed in America, was, so far as he could see, new to this country.

Dr. DARBY said he had been looking into Hecker, and he thought there were some grounds for justifying Dr. Lyons on the first blush of the moment, in giving the disease the name which was now objected to. He thought there was something very analogous to the cases they were now discussing related in Hecker—the vomiting, bleeding, and head symptoms were all described, and there was no very remote difference between them, except in the absence, in this disease, of the buboes. There were black spots, discharges of blood, and head symptoms common to both. He wished to bring under their notice two cases which came under his observation. A girl, fifteen years of age, was sent into his hospital from Kingstown, on the 22nd of March. Her head was thrown back; she had spots on the skin; grinding of the teeth, and convulsions. She died in four or five weeks after admission. He made a *post mortem* examination, and found lymph in the pons varolii, and congestion of the membranes of the spine. The spots which were on the body faded away, and, as they disappeared, they assumed that yellow and green appearance exhibited in the disappearance of a common bruise. Death, which occurred in the last week of April, took place apparently from exhaustion. All the time of her illness the patient had grinding of the teeth and retracted head, and the retraction continued till within two days of her death. What struck him as remarkable in this case was, that the spots faded, becoming green and yellow, and drab-coloured, for some time before she died. He

had another case in his own institution, of a boy who was attacked with acute purpura hemorrhagica. That boy recovered, and the spots on his body pursued the same course as in the case of the girl, assuming different shades of colour, and gradually disappearing. It struck him that there must be some peculiar epidemic character in this disease, for he had heard of several friends of his having lately seen cases of purpura, which was not a disease met with every day. One of the cases which he had mentioned certainly had spinal arachnitis.

Dr. Law said he desired to propound the question. What is to be regarded as the real pathology of this disease? From what he had seen himself, and from what he had heard, he confessed he looked upon it, no matter how modified, as cerebro-spinal arachnitis. The very interesting details which they had had from several members, and especially those presented by Dr. Haverty, confirmed him in this opinion. Every one of the cases mentioned by Dr. Haverty exhibited distinct signs of inflammation of the membranes of the base of the brain. If the pathology of the disease did not consist there, what was it? Was it a modification of fever? If it were, it was unlike any fever they had ever seen or known in this country. They had never known or met with a case of fever terminating fatally in sixteen hours, and perhaps there was no place where they had unfortunately a better opportunity of seeing fever in all its modifications, than in this country. They had never seen anything of this kind in fever, nor had they seen fever complicated with this affection of the spinal membrane. On the contrary, most persons who had directed their attention to affections of the nervous system had observed the appearance of eruptions in such cases. He alluded especially to Dr. Handfield Jones, who, in his Lumleian work on diseases of the nervous system, observed how frequently these eruptions on the skin are found to be associated with purely nervous affections. He alluded to a case in which a person presented on the skin an eruption like bad scarlatina; and in other cases it was not an unfrequent thing with surgeons in operation to observe these eruptions on the skin, resembling the purple spots in the disease now under consideration, and which took place when there seemed to be no other lesion than the shock of the muscular system. They all knew how nervous impressions led to this kind of bleeding—extensive purpura, with bleeding from the gums. They might recall a case of a gentleman who died from bleeding, caused by mental impression, and where these large purple patches presented themselves before death. Every case that had yet been brought forward exhibited marks of inflammation of the membranes of the brain, and therefore he thought they were warranted in supposing that there was an intimate relation between this disease and cerebro-spinal arachnitis. There was certainly no fever ever yet met with in this country, at least, that had exhibited this peculiar condition of the nervous system. If there be any modification

of fever to which this disease could be referred, it was not any fever with which we were familiar, but it might be the intermittent fever which occurred in other countries.

Dr. QUINLAN thought the expression "black death" was not a bad one, as descriptive of the peculiar feature of the disease. The black death which devastated Europe in the middle ages was the plague of the East, which existed at the present day, and came over to England in consequence of the low sanitary condition in which England then was. He believed that when the plague invaded England on that occasion this country had the same fortunate exemption from it which it had from the rinderpest last year. He thought the expression black fever, if it did not express the very nature of the disease, was not altogether inappropriate.

Dr. AQUILLA SMITH, in reference to the statement made by Dr. Quinlan, that the "Black Death" had not reached Ireland, directed the attention of the meeting to the brief account of the pestilence given in Clynn's "Annals of Ireland," published by the Irish Archæological Society in 1849, which is of great historical value on account of the very scanty information given in Hecker's admirable history of the "Black Death," respecting the progress of the pestilence in Ireland, which is composed in the following words: "Ireland was much less heavily visited than England. The disease seems to have scarcely reached the mountainous districts of that kingdom."

Clynn's account of the "Black Death" in Ireland:—

"Item hoc anno [1348] et maxime mense Septembri et Octobri convenerunt undique de diversis partibus Hiberniæ, episcopi et prelati, veri ecclesiastici et religiosi, magnates et alii, et communiter omnes utriusque sexus ad peregrinacionem et vadacionem aque de Thaht-Molingis (St. Moling's, Co. Carlow) turmatim et in multitudine, sic ut multa milia hominum simul illuc multis diebus convenire videres, quidam venerunt devocionis affectu, alii (sed plures) pestilencie metu, que tunc nimis invaluit, que primo juxta Dubliniam apud Howht [Dalkey—*in margine*] et Drovda [Drogheda] incipit, ipsas civitates Dubliniam et Drovhda fere destruxit et vastavit incolis et hominibus. Ita ut in Dublinia tantum, a principio Augusti usque nativitatim Domini xiiij. millia hominum mortui sunt. Ista pestilencia sic erat contagiosa quod tangentes mortuos vel inde infirmos incontinenter et inficiebautur et moriebantur, et confitens et confessor simul ducerenter ad sepulchrum. Et pre timore et horrore, pietatis opera et misericordie, videlicet, visitare informos et mortuos sepillire, homines excercere vix audebant. Nam multi ex antrace et ex apostematibus, et pustulis que creverunt in tibiis et sub asellis (axillis), alii ex passione capitis et quasi in frenesim versi, alli spuendo sanguinem moriebautur. In conventu Minorum de Drouda xxv.

et in Dublinia apud eosdem xxiij. fratus mortui sunt, ante usque Natalæ. Ista pestilencia apud Kilkenniam in xl°. [*i.e.*—Lent] invaluit, nam vi° die Marcii viij. Fratres Predicatores infra diem Natate obierunt, vix in domo unus tantum moriebatur, sed communiter vir et uxor cum natis corum et familia unam viam, scilicet mortis, transierunt. Ego antem frater Johannes Clyn de ordine Minorum et conventu Kilkennie hec notabilia facta, que tempore meo acciderunt, in hoc libro scripsi, que ouulata fide vel fide digno relatu didici, et ne gesta notabilia cum tempore perirent et a memoria recederent futurorum, videns hec multa mala et mundum totum quasi in maligno positum, inter mortuos mortem exputants donec venial, sicut verauter andivi et examinavi sic in scriptorum redegi, et ne scriptura cum scriptore pereat, et opus simul cum operario deficiat, dimitto pergamenam pro opere contimando, si forte in futuro homo superstes remaneat, an aliquis de genese Ade hanæ pestilenciam possit evadere et opus continnare inceptum."

Dr. M'Swiney said that the valuable observations which had fallen on that and on the previous night from the different gentlemen who had brought forward cases, would appear to him to clearly point out that within the last twelve or eighteen months there had been a number of cases of cerebro-spinal arachnitis, of the most fatal character, in Dublin; and, secondly, that there had been a malady which had been characterized by some competent observers as quite new, and the like of which they had never witnessed or even read of before. This latter malady was characterized by an extreme fatality, by the suddenness with which it occurred, and by a remarkable eruption, the nature of which was under consideration. The two cases which came under his observation rather rapidly served to illustrate in the most typical manner these two forms of disease. The were both cases recorded in the proceedings of the Pathological Society, one having been brought forward in the month of January, and the other in February last. One case of cerebro-spinal arachnitis, the subject of it being a little boy, was instantaneous in its invasion. There were no premonitory symptoms. He fell into convulsions, was severely tetanized, and died, without once regaining consciousness, in the seventeenth hour of his illness. The brain and spinal cord bore well-marked evidence of intense congestion. There was probably no time for the effusion of lymph, and the most remarkable pathological circumstance was that an inch and a-half of the spinal cord had undergone the most complete softening, and was broken up so as to resemble cream. This boy was unspotted, and the case was regarded as one of spinal meningitis. In a week afterwards a case most rapidly fatal occurred. It was that of a little girl, who was first seized by illness at eight o'clock in the morning, the first illness being marked by rigor, followed by nausea and then vomiting. The mother exhibited drinks from eight o'clock until eleven, each drink being thrown off almost immediately. At eleven o'clock

purple spots were noticed on the child's face, and the mother, becoming alarmed, then took advice. At three o'clock the child was dead—four hours after the purple spots manifested themselves, and eleven hours after the vomiting commenced. The brain and spinal cord were examined at the Pathological Society, and no pathological evidence of any lesion, save the single one of the diffusion of small spots of blood in the brain, was discovered in the child's body. What the decision of the Society would be as to the connexion or non-connexion of these cases, he could not, of course, anticipate. He was, however, of opinion that they were distinct diseases. He heard with some pleasure the recommendation to abolish that most inexpressive name which the disease had received, the more so as, at the meeting of the Pathological Society at which he brought forward the case, he for the first time proposed that something like a scientific nomenclature should be adopted. He stated that he knew of no disease which it resembled so much as purpura, and he proposed that it should be called malignant purpuric exanthem or malignant purpura. It might be within the knowledge of men who had extensive practice that there were threatenings at present of an epidemic of purpura. In the hospital which he was attached to, cases with purpuric symptoms were not rare. He had himself under his care, in an institution four miles from town, two ladies, sisters, of advanced age, who had large patches of purpura on their extremities, some black, some red, and some green, as the blood was dying away. In this case the disease was certainly not due to an insufficiency of food. Dr. Lyons, as they all knew, was under the impression that attacks of disease such as this purpuric fever, preceded great and wide-spread epidemics such as cholera.

Dr. Bennett rose to bring forward a case which had occurred in Sir Patrick Dun's Hospital, presenting a *complication of pericarditis* with *symptoms of cerebro-spinal arachnitis, and the eruption of the present epidemic.* The facts of the case were as follows:—

A little girl, five years of age, was admitted into Sir P. Dun's Hospital on the morning of 15th March, having been ill for the three previous days. She lay with the head retracted, and the spinal muscles were rigid, the legs and arms were flexed, but not rigidly. She complained of intense pain in the head, and placed her hand on the forehead when asked where the pain was; her cheeks were flushed; the tongue was readily protruded, and was coated with a thick grey fur; the respiration was very irregular; some small spots which did not disappear on pressure were scattered over the arms and legs, a few were on the trunk, and one, the largest and most recently formed, was seated on the left eyelid. These spots were the same as those observed in the greater number of cases of the present epidemic, and where blood extravasations, some of them being raised above the surface, others ordinary petechiæ. The child suffered much from thirst, and swallowed water greedily. She was very watchful, and suffered much

from intolerance of light, her eyes were bright, and her pupils much contracted; her pulse was hurried, small and weak, but regular; the heart's action was strong and jerking; a loud and continuous murmur was heard all over the cardiac region, and was prolonged into the great vessels. On the sixth day a pericardial friction murmur was audible with the first sound, and a few days later facial paralysis of the left side occurred, while the tongue deviated slightly to the right. There was at this time a remarkable blush on the paralysed side of the face, while the opposite side was quite pale. The spots faded in a few days without any fresh crop appearing. The case went through a series of alterations until it seemed almost certain that death was eminent, and at one time the temperature was 95. Finally, after this the case had rallied, and had gone on to convalescence, with a diminution of the facial paralysis. He thought that the symptoms of this case warranted him in bringing it forward, as being referrible to the present epidemic, and he thought also the occurrence of facial paralysis, and also paralysis of the tongue, and the peculiar aspect of the face, exclusive of the more general symptoms, were very strong evidence that if the case had ended fatally they would have found the evidence of inflammation of the brain and cord. He brought the case forward for two reasons—first, as it presents the complication of cardiac inflammation, which, as far as he knew, had been observed in but one other instance during the present epidemic; and, secondly, as he believed that the case threw much light on cases recorded both by Dr. Mayne and Dr. Graves. In Dr. Mayne's case, which he published in the proceedings of the Pathological Society, a similar group of symptoms occurred, but no eruption. He being at the time engaged with cases of the former epidemic, recognized the case, and set it down as meningitis. After death the heart, which had not been examined during life, was found inflamed, and the brain and cord free from inflammation. Dr. Mayne published the case to warn others against what he thought was an error, and seems to have referred the symptoms in his case entirely to reflex irritation, due to the pericarditis. He (Dr. Bennett) thought it highly probable that Dr. Mayne's case was one of those that had been met with in the present epidemic, where, though the symptoms of inflammation of the brain and cord were present, the *post mortem* evidence was wanting, and in which it became necessary to attribute the symptoms to the action of a specific poison. Dr. Graves published a case in one of his lectures which presented most of the symptoms of the present epidemic, and in addition, a murmur, or rather murmurs, in the cardiac region of nearly identical character with the present case. Dr. Graves concludes that the case was entirely anemia. He (Dr. Bennett) was strongly inclined to regard it as identical with this case in every way—at least such an explanation was more evident than Dr. Graves'. He thought the consideration of these cases must lead them to conclude that the cerebro-spinal meningitis, while

it was the most frequent pathological result of the specific poison of this epidemic, was not the necessary one. They must refer all the cases to one cause not for the first time acting, not different absolutely from the poison of 1846, but varying from it in its greater tendency to produce cutaneous eruptions as one of the earliest results of its action.

Dr. Grimshaw desired to mention a case which he thought was of some interest. It presented a feature which was observed in one of Dr. Hughes' cases—namely, a vesicular eruption over a portion of the body. It had no symptoms whatever of cerebro-spinal arachnitis. The disease only lasted eight days. The patient was a woman of thirty-two years of age, was married, and had had several children. She was admitted into hospital under the care of Dr. Kennedy, was then transferred to him (Dr. Grimshaw), and afterwards to Dr. Moore, who had sent the case back to him. On admission to hospital the patient presented a very remarkable appearance; her face was covered with vesicles somewhat resembling small-pox. These vesicles were surrounded with inflamed areola. In some the appearance was as if a black line had been drawn round the vesicle and "smudged off" over the surrounding skin. The fingers of both hands were quite black and covered with large bullæ, moveable under the cuticle as in cases of commencing gangrene. There were a large number of vesicles on the upper part of the right arm, and on the left arm. All over the lower part of the abdomen, the sacral regions and nates, the vesicles were very numerous and much darker than elsewhere, giving the whole of these parts of the body almost a black appearance. On the lower extremities there were scarcely any vesicles, but the feet were black and swollen, and an old ulcer on the right leg had put on a gangrenous appearance, large sloughs having formed around it for the space of a couple of inches. She presented no symptoms of arachnitis. The temperature at the time of admission was 105; it fell to 99, and on the day of her death rose to 101. The immediate cause of her death seemed to be the extension of her disease to the mucous membrane. She complained of soreness of the mouth and throat, and difficulty of swallowing; and on examination the mucous membranes of the mouth and fauces seemed ulcerated, and detached in many places. The chest became engaged, the whole of the lungs filled with bronchitis, and the immediate cause of death seemed to be the bronchitis. The pulse was at first 140; it fell to 84 on the day before her death, and on that day it was found impossible to count it. The case was considered by all his colleagues to be one of the class which they were now describing. It was stated that she had syphilis ten years ago, for which she received no treatment. The question arose in his mind as to whether this was not purpura, but on looking to the books in which that disease was described he came to the conclusion that it did not bear any resemblance to it.

Dr. Gordon—It seemed quite conceded that the title of black death was not to be used any longer, and also that this disease was not a new one, but in many respects similar to the epidemics which had occurred at various times on the Continent of Europe, and in America. It remained only to settle what the title of this disease was to be. He should think the only true ground to go upon for nomenclature would be to endeavour to find out what the strict nature of the disease was, and not to define it, or call it by any *symptom* which might arise. From the number of cases that had occurred in which two sets of symptoms, one which was (in his opinion erroneously) supposed to be a lesion of the circulation, the other a lesion of the nervous centres, had been developed so largely, they must, *a priori*, expect that they both had their origin in the same affection. Very few, indeed, if any of these cases which are characterized by one predominant set of symptoms, are altogether deficient in the symptoms of the other form. But, in his opinion, these eruptions were all a symptom of nervous lesion (the sympathetic probably) rather than a direct symptom of lesion of circulation, and many of these cases presented also symptoms of actual pathological changes in the nervous centres. They were not to expect in every case decidedly marked symptoms of disease of the nervous centres, but there had not occurred to him any cases in which one or more symptoms, strictly referrible to the nervous centres, were not present, and whether there was a well-marked retraction of the head, or a dark coloured eruption, the case was equally preceded by nervous disease. Dr. M'Swiney was in error in supposing that the cases he referred to was the most rapid on record, or that on account of the shortness of its duration, organic change had not taken place. He had recorded (see *Dublin Quarterly Journal*, May 1) a case which had lasted not quite five hours, and, on parts of the brain, was found a very thin layer of purulent effusion. From an analysis of a great number of cases (there had been more than thirty in the Hardwicke Hospital, dating back to his first case in April, 1866), he would say, that the two sets of symptoms, as they were termed, must be referred to the one cause, and, therefore, he would be disposed to call the disease *Fever with cerebro-spinal meningitis.* The eruption in these cases differed in many respects from purpura, which, at all events, could be looked upon as only a symptom, and therefore he considered the term "purpuric fever" to be erroneous.

Dr. Little said that in the case which occurred in Trinity College, pleurisy as well as bronchitis came on before death. One of the first questions, as it seemed to him, which they had to decide, was whether this new epidemic was due to local causes or to blood-poisoning. He thought when they found that the serous covering of the heart and lungs are likely to be affected, it appeared to him that they were dealing with poisoning of the blood. In the other case in the College, the eruptions

came out symmetrically, and the symptoms of cerebro-spinal arachnitis were well-marked. Death took place in seventy-two hours, and six or eight hours before death the bronchial affection was first discovered.

Dr. Henry Kennedy congratulated the Association on the great mass of valuable information brought before it; and this, he said, was the more important as the present disease was so scattered about that five or six cases might be considered a large experience. Three views of this disease had been advanced—one that it was a malignant spotted fever; a second that its essence was a cerebro-spinal arachnitis; and the third that the two diseases co-existed, the one being superadded, as it were, to the other. He then went on to say:—I myself hold the latter view, having a strong conviction that this is the proper way to consider the question. Before speaking of the disease itself, I would call attention to the fact that when any of the acute affections assume a great malignity, they run their course very much more rapidly than is usual; and, what is very important to bear in mind, present then a series of symptoms wonderfully similar to each other. As examples of what I myself have seen I may mention scarlatina, the disease known as acute jaundice, and our common typhus, when it assumes a very bad form. Some years back I saw many cases of scarlatina which terminated within forty-eight hours—the prominent symptoms being vomiting, purging, stupor, coma, convulsions. With the exception of purging, it was just the same with the cases of acute jaundice, of which I have seen five instances; whilst of cases of the worst typhus, and I have seen it run its course in six days, the symptoms were vomiting, stupor, and coma; convulsions very rarely occurring. In this last disease the appearance of the body after death was often very remarkable, the veins having allowed a part of their contents to escape, and there existing, at the same time, general mottling, not distinct petechiæ. But further, when I made an examination of any of these three diseases, I found appearances which were wonderfully similar one to the other; that is, I found violent congestions affecting the brain, extending down the spinal marrow, and attended by more or less serous effusion, which, in the cases of common fever, was often tinged with blood. Now it will be observed that the symptoms during life were in all referrible to the brain and spine, and the appearances after death were, I think I may say identical, and I believe are not to be classed as in any way connected with inflammation. As I go on the meeting will see the bearing of these remarks. It was in 1846 that Dr. Darby, of Bray, first described, in this country, some cases of spinal arachnitis. His remarks were very shortly followed by a paper of the late Dr. Mayne, and neither of these observers say a word about the presence of spots, though they describe the disease with great clearness. Hence I look upon it as certain that, at that period at least, no spots existed; and it may be mentioned in passing, I myself saw, at the South

Workhouse, several of the cases on which Dr. Mayne's paper was founded, and I also saw one case where acute pleuritis was alone found, though the symptoms during life were entirely referrible to the brain and spinal marrow. Since 1846 the disease seems to have disappeared till about two years since, when cases began to appear in the wards of the Cork-street hospital. These at first were all simple cases of the disease; but though very well-marked they did not present the same intensity of symptoms as in the year 1846; neither was the disease confined to boys, as happened in the first instance. Adults were now attacked, and, in my own wards, more females than males. In a very short time, however, the disease became a complication of our ordinary typhus, and then many of the cases presented the ordinary spots and other signs of typhus, together with well-marked symptoms of spinal arachnitis. In other cases again, the patients came in with typhus, being spotted, and then, in the progress of the case, spinal arachnitis set in. Neither was this last observed in one type of fever alone; and the tendency to the affection was very remarkable. Three young females, two of them being between twenty and thirty years of age, were attacked with the disease, and nearly at the same time, one of them very severely. The first had had typhoid, from which she was quite convalescent; the second was passing through gastric fever when attacked, her life was in the balance for many days; the third had had common fever, and was up before the spinal arachnitis showed itself. Now it was whilst this state of things was going on that the new and much more terrible disease, which, for the present, and following the great majority of the American writers, I shall call "spotted fever," appeared amongst us. Is it likely, I would ask here, and keeping in mind the facts just stated, that this new affection is but a modification of spinal arachnitis? I cannot think so. We saw that this latter affection first existed *per se*, then became a complication of typhus and other types of fever. Where is the difficulty in supposing that it may also be a complication of the "spotted fever?" This view, and this only, appears to me capable of explaining all the facts known. For, whilst it must be admitted that the great majority of the cases presented the remarkable spots and spinal arachnitis at the same time, it is not to be forgotten that many of the cases which had the spots did not present any symptoms referrible to the brain or spine. One well-marked instance of this was given to-night by Dr. M'Swiney, and of the two cases which came under my own notice, one had no symptoms whatever referrible to either the brain or spine. I know, too, that many similar instances have been met by others; and when such cases have been examined, no trace of inflammatory action has been found in either the brain or spine. For I do not admit that congestion, with some serous effusion—which, it will be recollected, is a state common to any of the acute diseases that run a very rapid course—is due to inflammation. If

it be, then the essence of our typhus fever must be inflammation, which I presume few will maintain. Taking, then, all the facts at present known, and more particularly the one that our typhus fever has, within these two years, been frequently complicated by spinal arachnitis, into consideration, it appears to me that no other conclusion can be arrived at than that the late terrible disease which has visited us is a specific fever, and that the spinal arachnitis is but a complication, which may or may not be present. On the treatment of the spinal arachnitis, when it complicates common typhus, I have got the idea that it is not usually as actively treated as it requires. In my own hands I know that antiphlogistics, including local bleeding and mercury, have been followed by the most satisfactory results; and when the disease was seen very early a fatal result was most unusual.

Dr. Hayden said—Mr. President, with your permission I would make a few observations on the important and interesting subject now under discussion. My experience of the disease which has recently appeared in Dublin, and to a limited extent in the provinces, extends only to the two cases which I have laid before the Society, but these cases were of a typical character, and made the subject of careful and anxious study; and to the disease, as observed and reported on in Dublin generally, I have given a good deal of thought. It appears to me that the most important preliminary points to be determined in relation to this novel disease are its general nosological affinities, and its pathology; and in considering it under these two heads we must duly estimate the two prominent groups of symptoms associated with it—namely, the cerebro-spinal and the cutaneous—in relation to the order of their manifestation, their mutual connexion, and their relative significance. Only two views can be held of the pathology of the disease—namely, either that it is essentially a form of cerebro-spinal meningitis, a disease with which this country has been long familiar, but modified by the "epidemic constitution" of the time in which we live, and therefore associated with marked prostration, and a peculiar cutaneous eruption, and ecchymosis; or that it is primarily a disease of blood-deterioration, allied to the essential fevers, and implicating secondarily the cerebro-spinal axis. I confess, sir, that I am in favour of the former of these views, notwithstanding that some difficulties arise in the detailed application of it to the disease under consideration. It is noteworthy that in the great majority of cases recorded, the attack commenced with symptoms of cerebro-spinal irritation—viz., pain in the head and back, sickness of stomach, morbid sensibility, and tingling sensations of the general cutaneous surface, followed in many instances by retraction of the head, recurvation of the spine, dilatation of the pupils, convulsions, and coma. These are undoubtedly the symptoms of cerebro-spinal meningitis, and, in a very large proportion of the cases reported, including both of those

which have come under my own observation, they preceded the cutaneous manifestation by an appreciable interval, varying from a few hours to as many days. Of the two cases which came under my own notice, in one, headache, vomiting, and hyperesthesia of surface preceded by four days, and contraction of the pupils and intolerance of light, by twenty-four hours, the appearance of eruption on the skin, and in the other, bilious vomiting, and other symptoms of cerebral disturbance occurred about nine hours before the petechial erruption appeared. So far, as to the order of manifestation of the two groups of symptoms. The pathogenesis, or pathological connexion between meningeal inflammation and cutaneous eruption and ecchymosis, I will not pretend to explain. I may remark, however, that the recent discoveries of Bernard in regard to the influence of the vaso-motor nervous system upon the capillary circulation, on the one hand, and the intimate connexion of that system with the spinal cord, on the other, would seem to warrant the assumption that central irritation of the cord may so modify the tension of the blood-vessels as to favour, if not to give rise to, extravasation from the cutaneous capillaries; but this, be it remembered, I offer, not as a solution of a great pathological problem, but as suggestive of a line of argument which may be further profitably developed. Observation and analogy are more to the purpose here. The frequent occurrence of herpes, eczema, and psoriasis, in connexion with chorea, is well-known. At the present time I have under my care in hospital a case of right hemiplegia with loss of speech, in which the patient has suffered from two successive crops of an ecthymatous eruption on the face and neck, of a most obstinate character, commencing on the paralysed side, but subsequently extending to the other. In the great majority of cases in which the advantage of a *post mortem* examination has been obtained, evidence of active meningeal inflammation at the base of the brain, and in the spinal canal, has been found; the arachnoid was opaque in many places; serum was effused into the cerebral ventricles, and deposits of lymph and pus were found at the base of the brain, and on the surface of the spinal cord. Now, sir, I would venture to assert, in presence of the many able pathologists assembled here, that such a marked preponderance of active inflammatory lesion of one particular organ, as has been found associated with this disease, is unknown in the pathology of essential fevers. It has been alleged, as favouring the view of the general nature of the disease, that pericarditis and pleuritis have been likewise met with in connexion with it, but the proportion in which these complications have occurred (only three cases out of the whole number reported to the Society) is much too small to confer upon them more than an *accidental* value.

Dr. Moore, Vice-President College of Physicians, said that he had an opportunity of seeing a series of cases with cerebro-spinal symptoms, in Sir P. Dun's Hospital, about eighteen months ago. He had listened

attentively to the details of all the cases which had been brought before the Society, and in every instance where a *post mortem* examination had been made, evidence of cerebral and cerebro-spinal meningitis had been found, and in two cases which he had the opportunity of seeing, through the kindness of Dr. Gordon, the disorganization might have been termed "excessive," the whole spinal cord being deluged in pus. The symptoms in so many cases could not be expected to be identical. In one there was violent pain along the spine; in another, paralysis; in a third, vomiting and convulsions, all of which symptoms were admittedly nervous, and such cases are valuable, so far as their details go, in pointing to the same exciting cause; but it is upon the cases where the pathology was obtained that we must chiefly rely, more especially on those of Dr. Haverty, in every one of which evidence of severe nervous lesion was shown, and the same was observable in almost every case which has fallen under Dr. Gordon's notice. As regards the herpetic eruption, which prevails in these cases, Dr. Moore went on to say, that recent experiments have shown that nervous irritation is capable of producing herpetic or some such allied eruption over the periphery, and he had seen this proved in two remarkable instances, when large thoracic aneurisms had given rise to persistent nervous pressure, and to equally persistent herpetic eruptions. As regards the purplish spots, call them "petechiæ," "maculæ," or what you will, they must be regarded as hemorrhagic, and having detailed the close intimacy which is now admitted to exist between the vaso-motor and cerebro-spinal symptoms—so close, that it is difficult to determine where the one stops and the other begins—he concluded that the hemorrhage was most rationally accounted for by the sudden paralysis of the whole nervous system, more especially the vaso-motor, by which means the blood over the body generally may be said to have been "let loose." Everything considered, he thought physiology and pathology must lead us to view this disease as essentially of a cerebro-spinal character. Our knowledge of the nature of diseases in the abstract is as yet limited, but with the information we are possessed of, it is as rational to call this prevailing epidemic a "cerebro-spinal meningitis," as it is to define a disease "pleurisy," or "pneumonia," where pathology shows us a pleura coated with lymph, or the lower half of a lung in a state of trepatization.

Dr. T. More Madden said that he had been requested to say a few words in reference to the observations made by Dr. Smith, on the occurrence of the black death of the fourteenth century in Ireland. In the course of his remarks on a case of malignant purpuric fever, which he read before the Society, Dr. Quinlan had mentioned that he had been informed that there was reason to doubt if the black death which prevailed in England in 1347 had then visited in Ireland. Dr. Smith, in reply, quoted an authority, the name of which he (Dr. M. Madden)

did not catch, but which he supposed must have been Father Clynn's Narrative, cited in Harris's *History of Dublin*. Now, as he (Dr. More Madden) had mentioned to Dr. Quinlan that no allusion to black death in Ireland in the year 1347-'48 was to be found in the *Annals of Ireland*, by the Four Masters, he thought it right to say that last year, when engaged on an essay which he then published on the connexion existing between epidemic and epizootic diseases in Ireland in the middle ages—which connexion, he might observe, was recently well illustrated by the rinderpest, which preceded and accompanied the epidemic cholera in England last year, he had frequent occasion to consult the *Annals* of the Four Masters, and was particularly struck by finding that these *Annals*, which contain special notices of the plagues which visited Ireland, make no reference whatever to the "black death" at the time when it prevailed elsewhere. And, therefore, without having the least doubt of the accuracy of Father Clynn's Narrative, he thought it might be of interest, when the history of the disease came under discussion, to mention this omission, as it was certainly curious that a pestilence, so remarkable in its character and so fatal in its results, should have occurred in Ireland in the year 1347 without being observed and chronicled in the contemporary *Annals* of the Four Masters.

Dr. Banks said that having seen some cases of the disease under consideration, he should like to state his experience of it shortly. He had seen some cases in which cerebro-spinal symptoms were very well marked, and in others those symptoms were absent. The disease appeared to him to be altogether a blood disease, and in the observations made by Dr. Gordon on the evening before last he entirely agreed. He had himself reported in the journal some cases of the disease, and there was just one point to which he wished especially to revert, namely, that from the period that this new disease first appeared, he had seen a considerable number of other diseases in which black spots appeared on the surface of the body. He saw lately, in consultation with a physician on the other side of town, a case of acute rheumatic fever, in which large purpuric spots appeared, in no respect differing from some of the cases of this terrible disease; so much so, that at the moment he first saw them his impression was that the disease was about to assume the character of this most fatal malady. He saw at least six cases within a short period in which these purple spots appeared. It seemed to show, as Dr. Hughes had suggested, that there was some peculiar state of the atmosphere owing to which this asthenic condition of disease was present. He believed the disease they were now considering was in almost all cases cerebro-spinal arachnitis, but there were some cases in which the altered condition of the blood, manifested by the appearance of the spots over the surface, occurred without any sign of cerebro-spinal meningitis being discernible after death. With reference to the name of this disease, he

would venture almost to give it a name, but he hesitated because there were so many objections to all the names which had been suggested. He strongly protested against some of them, and more especially against the name "Black Death." It would be a waste of time to go further into that subject. They all knew the terror it had struck into the public mind when the name first appeared in the newspapers. They all knew that pestilential diseases were frequently fatal to the first persons attacked, but the effect of calling the disease "Death" impressed people with the notion that all attacked must die. In almost all such diseases experience showed that the disease decreased in virulence as it wore out, and that the latter cases in every epidemic were not so bad as the earlier ones. He believed this disease was a blood disease, that the greater number of cases were cerebro-spinal arachnitis. He would venture to call it pestilential purpura. It had all the attributes of a pestilential disease, and he thought this name less objectionable than some of the names that had been given to it.

Mr. Fleming bore testimony to the great interest and importance of the remarks which had been made by the gentlemen who had taken part in the discussion. His observations would be limited to what fell within his special department in the surgical wards of an hospital. He thought, as regarded the nomenclature of the disease, they were all agreed that the fearful appellation "Black Death" should be given up; and he would suggest that the name which the President had given it would be suitable, as expressing all its essential features, viz.—malignant purpuric fever. The word fever, perhaps, was questionable, for they had heard that the disease had manifested itself without fever. As to its surgical aspect, he would ask those who had witnessed surgical operations and injuries, to recall the supervention of symptoms like these as regards their extreme intensity, and their fatal termination. They were all familiar with them, and especially as regards diseases affecting the periosteum, with eruptions on the skin, and complicated with pericardial effusion.

The President said he would now offer a few remarks on the debate of that night, and on the subject in general. He might observe, in the first place, that his friend Dr. Gordon, in his paper in the *Dublin Quarterly Journal*, had, to a great degree, exhausted the subject, so far as the epidemic of cerebro-spinal arachnitis is concerned. He did not say that he entirely agreed with Dr. Gordon in the general conclusion at which he had arrived as to the pathology of the disease, but, so far as the observation of the local disease went, he thought his paper was an exhaustive one. Now, it appeared that, during the past year at all events, Dublin had been visited by two forms of *essential disease*. The first of them was the affection which they had been discussing that night, and the second was the cholera; and, looking at the invasion of these diseases in the one year, it was very hard to avoid the conclusion that

some relation existed between them. The disease which he proposed to call malignant purpuric fever (he was not, however, wedded to that name) seemed to precede the cholera. In some cases it was in its very highest form of development before the cholera broke out. That extraordinary case of Dr. Croly's apprentice, which, as far as he knew, was the first case of the disease, occurred in March, 1866. That young man went to bed feeling a little ill, after sitting in his room during Sunday. His master visited him in the evening, and observed a few petechial spots on the neck. This alarmed him, because so early an appearance of petechia in fever is unusual. He saw him in the morning and the spots were black; they appeared to grow under his very eye. At eleven o'clock the spots were numerous and extremely large, and between eleven and one o'clock the entire right arm and half of the right chest were as black as the coat of any gentleman in the room; large patches of ecchymosis appeared all over the rest of the body, and the patient was dead at two o'clock. During the pressure of the cholera the disease seemed to be very much less frequent. It seemed to be to a great extent suspended. There were but two cases in the Meath Hospital in the months of October, November, and December, and they were not cases of the very rapid form of the disease. Then when cholera died away this extraordinary disease reappeared, and so far from being confined to Dublin, it appeared in several country districts, and they did not yet know in how many country districts the disease may have appeared. It struck him that this disease had all the characteristics of a most malignant blood-poisoning, and that, though it was in character an essential or so-called zymotic affection, it differed from every form of fever with which they were familiar. Every case had been contributed by independent observers, and the details of the cases presented complications singularly varied, yet there was an amount of generic coincidence among them to justify their classification under one head. How did the disease differ from ordinary maculated fever? It differed from fever in the rapidity with which it ran its course—a course from a few hours to a few days. The first was a thing unknown in cases of ordinary typhus. It differed also in the eruption—in the character of the eruption, the mode of its appearance, and the duration of the eruption. This disease began in ordinary cases with the eruption, which typhus fever did not; and it differed again in the frequency of one special local symptom—namely, the cerebro-spinal irritation. It might be a question whether these symptoms were the result of reflex action or the result of general inflammation of the structures themselves. The fact was certain that in many cases the membranes of the brain, and at least those of the upper part of the spinal cord had been found inflamed. This was one of the rarest circumstances in typhus fever. Let them consider these points. First, the duration of the disease—the disease had been fatal in less than

eight hours—as few as eighteen or twenty hours was not at all unfrequent. From five to six days appeared by different cases which had been reported to have been an ordinary proportion, and there were three cases where the disease ran on for several weeks before the patient was convalescent. The eruptions had been very various. In some the spots were elevated. In rapidly fatal cases it had appeared in the form of petechiæ, running rapidly into ecchymosis, the original ailment not being preceded by fever at all. A few hours were sufficient to render a large portion of the body black. Another point of difference between this disease and typhus fever was an important one—the variation in the range of temperature. In one case in the Meath Hospital the temperature on the third day was below the natural standard—96 7-10ths, and in this case the highest temperature reached was 98 8-10ths. The pulse was only 80. In the second fatal case on the second day, the temperature was 99 6-10ths, and on the third day it rose three degrees. The pulse, on the day preceding death, was 84. The occurrence of cerebro-spinal arachnitis in many of these cases was remarkable. In two cases which he saw, the patients could only lie on the abdomen, and when the trunk of the body was lifted up by main strength, the patient immediately slipped down to the bottom of the bed. There was great variety in these cases of cerebro-spinal arachnitis. One of the first cases of this disease which he saw was marked by some curious symptoms. A boy was taken ill with symptoms like those of cholera; symptoms of collapse set in in four hours; large spots came out on the arms; the head became retracted, so that he could only lie on his belly. He had a low form of fever which left him on the third day, when the spots began to disappear, and the boy had a quiet pulse, but the retraction of the head continued to the most extreme degree, and in this state he remained for seven weeks lying on his belly, eating, drinking, sleeping, and getting fat. At the end of seven weeks the retraction got less and less, and he completely recovered. This was a remarkable fact, showing that they were not to infer from the existence of this special symptom that there was necessarily cerebro-spinal arachnitis. Another boy had typhus fever, and in recovering from it the retraction of the head took place. He could only convey to them an idea of its extent by saying that if the boy was raised up in bed the face was almost horizontal. At this period of extreme retraction a liniment of iodine was applied to the neck, and the next day the retraction was almost altogether gone. They must not forget that in some cases, neither the local symptoms of cerebro-spinal arachnitis were present, nor were any indications of them found after death. He saw one case where there were no symptoms of cerebro-spinal arachnitis. The patient preserved his senses up to the last. This would tend to show that this lesion was not primary but secondary, and all observation went to establish that it was a secondary and not an

essential condition. Let it not be forgotten that in some of the worst cases the symptoms of spinal arachnitis were absent; and if, as some supposed, the ecchymosis and eruptions were due to disturbance of the nervous centres they should have found in the worst cases of the disease the greatest amount of lesion, but the fact was not so. It might be that there was an epidemic tendency to local disease. Some years since they had seen a great many cases of abscess of the liver, which was a rare disease. They knew from Dr. Darby, Dr. Law, and Dr. Gordon, that there had been cases of cerebro-spinal disease very frequent for some years past. But although this disease of cerebro-spinal arachnitis had been naturalized amongst us for years, it was only during the last year that the disease marked by this singular eruption had occurred. Now, there had been an idea abroad of this disease being measles, from the similarity of the eruption in many cases, and it was worthy of remark that during the time that these cases were most prevalent, measles had been unusually frequent, and unusually fatal. A case had occurred under his observation which showed the difference between this disease and measles. In a family in this town, one of the children, a little boy, had well formed and natural measles. A little girl, his sister, sickened, and the parents thought she was getting measles. This was followed by the black eruption which was characteristic of the disease which they were now discussing. After a few days well-marked measles made their appearance, causing a peculiar change in the girl's aspect. All these facts would strongly bear out the view that this disease was a blood-poisoning, and that the cerebro-spinal affection was a secondary disease in this form of fever. Now, as to the question of contagion they had had few facts before them until the last day of meeting to lead to the conclusion that this was a contagious disease. Dr. Haverty in his paper mentioned some facts tending to that conclusion, and they had at present in the Meath Hospital a mother and child labouring under this disease, and who had apparently caught it by contagion. Another child died of this black disease some time ago. Some days afterwards the second child sickened with the same symptoms. The mother slept in the same bed with the child. She sickened the next day, and both mother and child were at present in hospital. These facts were very important with reference to the question of contagion. Although the disease had up to the present proceeded sporadically, there was no reason to say that it might not be of a contagious character. He thought this was a disease of the blood, of an essential nature, and that the secondary and incompetent cerebro-spinal arachnitis was to explain it. The number of cases contributed by members and visitors showed the great value of the Society. It showed that the Society was becoming a great medical observatory, affording men an opportunity of placing upon record cases of a remarkable character, while the facts were fresh in their memory (applause).

The meeting then separated.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.[a]

Dr. R. W. Smith, President.

Ulceration of the Intestines.—Dr. Henry Kennedy exhibited a portion of the lower part of the ileum, taken from the body of a patient who had died of enteric fever. A young man of seventeen was admitted into Dun's Hospital in August of the present year. For a week it was doubtful what type of fever he had. It then seemed more of the gastric than any other type. At the end of the week diarrhea came on, but no spots. Still it was thought prudent to treat the case as if it were enteric; and after a few days the patient got better, and progressed so far as to be able to be up. At this period an error in diet was made—at least the patient himself thought so—and he at once relapsed; the symptoms becoming much more intense than at first; the fever now ran very high; the diarrhea became severe; and spots appeared in due course, few and well-defined. It is enough to add that treatment now failed; matters became worse and worse; and the patient died on the thirty-seventh day of the illness, reckoning from the first onset of fever.

On examination, ulcers were found in the ileum and colon; though quite distinct, they were very superficial; in fact, not typical of the disease. Those in the colon were the more distinct, but isolated, as if a little bit had been punched out. The glands of the mesentery were enlarged, and one had formed into a little bag of pus. This case Dr. K. thought worthy of noting, as, at the previous meeting, Dr. Leet exhibited a specimen of ulceration of the ileum, taken also from a fever patient, but under different circumstances, and so affording a marked contrast. In Dr. Leet's case the patient had typhus fever, as shown by a copious rash. In the course of the attack diarrhea appeared twice, but so slight as scarcely to attract notice. The patient ultimately died of abscess of the lung. On examining the ileum distinct but superficial ulceration was found. Here there were two cases of ulceration of the ileum occurring in the progress of fever; and yet, in one of them, the symptoms during life were those of well-marked typhus. The only other point Dr. K. would notice was the presence of ulcers in the colon. These were met in many of Louis' cases; and Dr. K. thought it more common in these cases than was generally supposed.—*December* 8, 1866.

Vitiligo.—Dr. Belcher exhibited a drawing of a case of vitiligo, on which he made the following remarks:—The case illustrated in the accompanying sketch occurred in a young lady, aged six, who was sent

[a] These reports are furnished by the Secretary to the Society.

to me by a physician in large practice in this city. On the 2nd February, 1866, at the time of her first visit, it was stated that both parents were healthy; her own general health was good; no one in her family had ever been affected with vitiligo, or anything approaching to it; and, in fact, nothing could be found to account for the appearance here indicated, which very naturally caused her parents no small anxiety. About the beginning of the year 1865, some grey or white hairs first appeared; they increased in quantity until a large portion of the hair at the right side of the head became white, resembling, in fact, the wax figures of heads of hair, partly dyed and partly white, to be seen in most hair-dressers' shop windows. The appearance of the skin corresponded pretty closely to the plate of vitiligo in Dr. Neligan's *Atlas*, the unaffected patches being more prominent in this case than in Dr. Neligan's plate.

The extent of the disease of the skin at this time was mostly limited to the front of the right side of the trunk; and, in a lesser degree, to the back. On the right arm, near the elbow, was a patch of what, at a cursory glance, seemed to be incipient psoriasis.

About three weeks afterwards the disease had extended completely round the body like a broad belt. It also appeared on the forehead, on the hips, and down the outside of the thighs, as well as on both feet. There was no appearance of tubercles or elevation of any part of the surface. I considered the disease in this case to have arisen from a deficiency in the colouring matter of the skin; and I am unable to say anything further as to its subsequent history.—*December* 15, 1866.

Aneurism of one of the Sinuses of Valsalva.—Dr. Jennings exhibited a specimen of Valsalvian aneurism complicated with almost complete occlusion of the aortic orifice, obtained from the body of a man, aged thirty-six, who had been discharged from the army in consequence of ill health. He was first admitted into hospital about two years since, labouring under disease of the heart, the precise nature of which was easily recognized from the presence of a prolonged harsh "bruit," audible over the aortic orifice and upper portion of the sternum, synchronous with the ventricular systole, and evidently produced by aortic obstruction. The total absence of the second sound showed that the obstruction resulted from a morbid deposit, which had rendered the semilunar valves rigid, if not altogether immovable.

Although the heart's action was laboured and violent, and its impulse visible at the distance of several feet, and at a point considerably lower than normal, yet the pulse at the wrist was exceedingly small and irregular. Having remained under treatment for some time, during which he experienced great relief from repeated leeching, and slight mercurialization, he voluntarily left the hospital.

On his next admission, after the lapse of nearly twelve months, on the

28th April, 1866, the progress of the aortic occlusion, as also the engagement of the mitral aperture, was painfully evident. Pulsation was now imperceptible at the wrists, and could scarcely be distinguished even in the larger superficial arteries. The head and face were swollen and livid, and the respiration hurried and greatly distressed. Both sides of the chest were extremely dull; the extremities anasarcous; and great difficulty was experienced in maintaining the necessary temperature of the body.

A second systolic "bruit" strongly contrasted with the original one—being much softer in character—was now heard below, and to the left of, the left nipple, establishing the fact of mitral regurgitation.

Although the fatal termination of the case at no distant date was painfully manifest, yet the instantaneousness of his death, which took place on the evening of the 2nd of May, after he had passed an unusually tranquil day, occasioned no slight surprise, and caused the autopsy to be made with unusual care.

P.M.—The vessels of the scalp and brain were engorged with dark-coloured blood. The lungs, also, were entirely congested, and the chambers of the heart were all filled with coagula. Both ventricles were hypertrophied and dilated, especially the left. The auricles also were more capacious than normal, and the parietes of the right unusually thin Both auriculo-ventricular orifices were correspondingly enlarged, their valves, however, being perfectly healthy in structure. The right and left divisions of the aortic semilunar valves were found converted into large irregular osseous masses; the edge of one projecting over that of the opposite, thus forming a very irregular and sinuous passage; so that in consequence of this derangement, the passage of the blood must have been rendered still more tedious and difficult. The anterior flap, though very diseased and thickened, was not occupied by any morbid deposit, and when viewed from the aorta was almost completely concealed by the nodulated bony masses of the other curtains. When viewed from the ventricle, it was seen to bulge into this cavity, under the pressure of the osseous deposit above. It also presented from this aspect two ragged perforations, which would permit the passage of a very small pea. Springing from the base of the anterior curtain, near its union with the right, was seen an aneurismal enlargement, about the size of a grape. This communicated with the Valsalvian sinus by a large orifice, of irregular and ragged outline, and projected, in a somewhat upward direction, into the right auricle, just above the "zona tendinosa," its cavity being distinctly invested by the lining membrane of the aorta.

Death had resulted from a somewhat circular perforation of the sac in its superior aspect.

Dr. Jennings remarked that the extreme rarity, under any circumstances—even of other co-existing lesions—of aneurismal expansions in

this situation, however probable such might seem from anatomical reasons, was well evidenced by the fact that the records of the transactions of the society, since its foundation, afforded the histories of but four similar cases. One produced by the late Professor Harrison, on 23rd February, 1839, in which the pouch extended downwards, along the "septum cordis," towards the right ventricle. A second, shown by Dr. Hanna, at the meeting held on the 9th March following, in which the sac pressed downwards into the external wall of the left ventricle. A third, exhibited by the late Mr. Carmichael, on 12th December, 1840, and in which the tumour compressed the pulmonary artery at its origin; and a fourth, the particulars of which were given by Dr. Gordon, during the session 1862–3.

In every one of these instances, as also in the present, other and most serious cardiac or arterial diseases had coexisted; the most prominent symptoms of which seem, in the first three, to have prevented any special and positive recognition of the aneurismal lesions. In Dr. Gordon's case the complication was "permanent patency" of the valves. But still more unusual must this form of aneurism be in cases of almost complete occlusion of this orifice, the quantity of blood transmitted through which must have been reduced to a minimum, and the reflux, of course, correspondingly weak. In his opinion, the yielding of the arterial coats must have commenced in the very earliest stage of morbid action, when all the valvular curtains were alike inelastic, and probably patent; its subsequent progress having been arrested by rapid osseous deposition in the right and left divisions. Thus the small size attained by the sac might be explained, not merely by weakness of the descending column of blood, but further by the fact that it was to a great extent protected even from this trivial pressure by the support afforded by the interposed mass of bone.

In the present instance, though the actual nature and rapid development of the aortic obstruction, as also the subsequent inadequacy of the mitral valves, had been positively determined during life; yet it was but right to state that no suspicion was entertained of the aneurismal complication, nor did there exist any of those characteristic symptoms which enabled Dr. Gordon to recognize the presence of mischief in addition to the patent condition of the valves.—*December* 15, 1867.

Cirrhosis of the Liver.—Dr. Banks said that, on the 6th of July last, a woman, aged forty, was admitted into the Whitworth Hospital. She presented the usual symptoms and signs of cirrhosis of the liver. The ascites, which had not attained to any great extent at the time of her admission, greatly increased; and after she had been a few weeks in the hospital she was tapped. She vomited occasionally; and once she discharged a considerable quantity of dark fluid which, on microscopical

examination, was found to contain blood. She suffered frequently from attacks of diarrhea, and sometimes this diarrhea was uncontrollable, and brought her to a very low ebb in point of strength. She was very slightly jaundiced; the jaundice being not by any means so marked as is usual in similar cases. On the occasion of the fourth tapping, a few hours after the operation, she manifested symptoms of intense peritonitis, and for some time, at least for a day and a half, it appeared as if the disease must prove fatal: but she recovered from the peritonitis, and was tapped four times subsequently. On these occasions 28, 32, 26, and 38 pints of fluid, of the usual character, were drawn off. After the eighth tapping she gradually sank; protracted diarrhea, and consequent debility, being the immediate cause of her death. On examination of the body, the capsule of the liver was found to be very much thickened; but the liver was not found in the advanced stage of cirrhosis which might have been expected from the duration of the disease, and its fatal termination. It was rough, and presented a nutmeg appearance. It was also diminished in size, and presented evidence of perihepatic inflammation, false membranes, like ligaments, extending from the diaphragm to the surface of the liver. The case was interesting in one respect—the fact of the woman, in her broken down condition, having recovered from peritonitis. All who had seen much of this disease were aware that peritonitis, occurring after paracentesis, was almost always fatal, being generally of a low asthenic character; but this woman recovered from the peritonitis and lived for two months afterwards, and was four times subsequently the subject of operation without any peritoneal inflammation following.—*December* 15, 1866.

Pemphigus.—Mr. William Stokes said he wished to bring under the notice of the society the particulars of a case which was under his care in the Meath Hospital, in September, last year. It was one of interest from a two-fold point of view. In the first place, from the rarity of the disease, viz., chronic idiopathic pemphigus; and, in the second place, because it exhibited a sequela of that affection which, as far as he could ascertain, had not been noticed by any writer on dermatology.

The disease was a rare one, and he might mention that in the proceedings of that society there had been only one example recorded of it, and that was shown by Sir D. Corrigan, so long ago as the year 1842. Since that time there had been no record in the proceedings of the society of any case of the kind.

The patient, a young woman, aged twenty-two, was admitted to the Meath Hospital on last September twelve months. She stated that about twelve months previous to her admission these bullæ, or vesicles, began to appear on her shoulders and axillæ. The vesicles varied both in size and form, some of them being the size of millet seeds, others as large as a shilling or a florin piece. They ran the usual course—the clear, straw-

coloured fluid, which was at first contained in them, becoming, in a few days, opaque; and the epidermis covering them bursting, left behind a light excoriation of a brilliant red colour, and without any hardened base. The appearance of these vesicles was not complicated with any febrile symptoms, but with a remarkable increase in the depression under which the patient habitually laboured. This increase in the depression was also a feature noticed by Sir D. Corrigan in the record of his case. Another peculiarity in this case was the appearance of the vesicles on the scalp, a situation which, according to dermatologists, is generally free from the invasion of this disease. The patient stated that about five months after the first appearance of the vesicles on her head and chest her fingers became affected, and shortly afterwards there was a shedding of the nails on both hands; subsequently the toes became affected, and with a like result. This alopecia ungualis had been observed to occur in other cutaneous affections. Dr. Fleming had mentioned the particulars of a case of eczema, under his care last year, in which this had been observed. It had been observed to occur as a congenital malformation, some remarkable cases of which were given by Lebert, in his Pathological Anatomy. It is also noticed by Delpech in connexion with syphilitic onyxis.

In the case, however, under consideration, the alopecia ungualis occurred without any previous inflammation of the skin in the immediate neighbourhood of the nails, or any appearance of an abnormal character in the nails themselves. This affection has also been noticed by Hunter, Cullierier, and other authors; but he was not aware that it had been noticed by any writer in connexion with this disease. It was not mentioned in any of the foreign works on dermatology, or in the work by Dr. Neligan, which has been recently edited by Dr. Belcher.—*December* 15, 1866.

Malformation and Disease of the Liver.—Dr. Henry Kennedy exhibited a specimen of diseased liver taken from the body of a young man of twenty-two years of age, who was admitted into Sir P. Dun's Hospital in August last. The patient had lived a very hard life up to the very moment of his being seized with his last illness, which assumed the character of what is known as acute jaundice. On admission, he was insensible, his pupils rather dilated, and his pulse about 66 in the minute. He could not be roused; but he swallowed slowly. His body presented a marked, though not a deep shade of jaundice; it was more of a lemon hue. His right arm and leg were jerked at certain intervals, as if by spasm; and this continued to the last. There was no further approach to convulsions, such as Dr. K. had seen in similar cases before. No treatment seemed of any avail, and the patient died the fourth day from admission. The entire illness had not lasted a week. The pulse got rapid the last day of life, and profuse perspiration occurred.

On making an examination, the stomach and duodenum were found quite healthy, and all the ducts pervious. The gall-bladder was half full of dark-coloured bile. The liver was much reduced in size, and weighed two pounds all but two ounces. The upper surface, and only this portion, was stained of a very dark hue, as if from the exudation of black bile; and the serous covering was somewhat opaque and milky. The left lobe could scarcely be said to exist; it was the merest trace of it which remained, probably not more than one ounce in weight. The under surface of the organ presented a very peculiar appearance. It was very irregular; being made up of a number of prominences, each about the size of a walnut, and projecting more than half an inch from the surface. Whether these were congenital, or the result of disease, it would be hard to determine. The human liver often exhibits forms analogous to what exists naturally in the lower animals; and so it may have been in this instance. Be that as it may, these lobes were all diseased, and when cut into presented a very marked specimen of "acute yellow softening" of the liver, described by modern writers. All had given cases where the disease, known as acute jaundice, had occurred in persons whose livers were found in a state of yellow softening. In fact, all writers had connected them as cause and effect. Dr. K. did not believe this view to be quite correct; for he had seen cases of acute jaundice where the liver did not, on examination, exhibit the yellow softening; so that the latter could only be considered as one of the states which may give rise to acute jaundice. In looking through the several recent works on the liver, Dr. K. was struck with the fact, that the very able paper of the late Sir Henry Marsh, on this specific subject had been entirely overlooked.—*December* 15, 1866.

Fracture of the Anatomical Neck of the Humerus.—Dr. Fleming said that in the excellent work of the President on *Fractures in the Vicinity of Joints*, he made a remark which must be admitted to be practically correct, that in no joint was it more necessary for the surgeon to be circumspect in his diagnosis than in injuries in the immediate neighbourhood of the scapulo-humeral articulation. A case of this class of injury recently occurred to Dr. Fleming, which was specially interesting, namely, a fracture of the anatomical neck of the humerus, one of the rarest of those occurring in this locality. In the treatise to which he alluded numerous examples were given of the effects of this accident at distant dates from its occurrence; but Dr. Fleming knew of no instance in which there was an opportunity of examining its anatomical characters at so early a period as in the case which he now presented to the Society. The subject of the injury was a man of middle age, of extremely intemperate habits, and, on a late occasion, whilst intoxicated, was crossing a street, when he was thrown down by a cab. Two days after

the accident he applied at the Richmond hospital, when Dr. Fleming saw him, and his attention was particularly attracted by the extreme amount of pain and suffering the man appeared to experience in the left shoulder joint, although, on examination, not the slightest external mark of injury could be detected about it—not an abrasion—not a trace of contusion could be observed—and there was not the slightest deviation in the outline of the joint from that of the opposite side. The limb was powerless; there was agonizing pain on the least movement of it; and the lightest touch in the situation of the greater tuberosity of the humerus was intolerable. In endeavouring, by the ordinary methods, to ascertain whether any crepitus was discernible, this was the only spot where such could be detected; and the sensation was really more that of the crackling of parchment than the peculiar crepitus of fracture. Satisfied as to the probable nature of the injury, the man was admitted into hospital; where, on the night of his admission, he was attacked with cholera, and died on the following day, and Dr. Fleming succeeded in obtaining the shoulder joint.

A fracture of the anatomical neck of the humerus, almost completely intra-capsular, was found encircling the head of the bone, at one portion of the circumference of which there was a chipping off of the margin of the articular cartilage, and the greater tubucle was found to be the seat of a comminuted fracture. The under surface of the superior fragment or head of the bone was excavated. There was a similar appearance in the inferior fractured portion, leading to the impression that a certain amount of impaction of the fractured portions of bone had taken place at the time of the inquiry.

Dr. Fleming observed that the specimen was strongly confirmatory of one of the conclusions arrived at by Professor Smith, in the elaborate work already alluded to. When speaking of the injury in question, he says:—"The intra-capsular impacted fracture is generally accompanied by fracture of one or other, or of both tubercles, and is, so far, analogous to the extra-capsular impacted fracture of the neck of the femur, with fracture of one or other, or of both trochanters."—*December* 15, 1866.

Primary Cancer of the Kidneys; Cancerous Tumour in the Prostate Gland.—Dr. Fleming presented specimens illustrative of the above-mentioned lesions, and gave the following history of the case.

The patient was a countryman, beyond sixty years of age, who had been sent to the Richmond Hospital from the north of Ireland. labouring under urinary disease, which had been persistent for a lengthened period. The history of the previous and existing symptoms of his complaint was by no means satisfactory, as he laboured under much fever, accompanied with head symptoms, which rendered him as indisposed as unequal to answer questions; but the more prominent symptoms

were and had always been, referred to the urinary organs. Originally, they were urgency, frequency, and pain in micturition; and these now had terminated in incontinence of urine, which was occasionally attended with paroxysmal pains. The incontinence was persistent both during the day and night. There was a larger amount of continued fever than is usually present in such cases. His thirst was great; his pulse unsteady and quick, and his bowels irregular. He did not complain of tenesmus. It was difficult to examine the character of the urine, but from the small amount collected it was satisfactorily ascertained that its reaction was acid, its colour clear, and there was no blood in it. Indeed, he distinctly stated that he never had had hematuria. There was no tumour traceable in the abdomen. The impression respecting the presence of stone in the bladder was removed by the introduction of a sound; it entered the bladder with some slight interruption in the prostatic portion of the urethra, but there was no stone to be detected, neither was there any urine in the bladder. The prostate gland was found to be much enlarged, and the sensation of a nodulated hardness was distinctly communicated to the sound when moved in the bladder. The fever quickly assumed the character of the epidemic, and rendered his removal to the Hardwicke Hospital necessary, where he died, having survived his arrival from the country only a fortnight.

For some days previous to his death his cerebral symptoms occasionally were marked by some epileptiform attacks, but in the intervals he was at times quite conscoius. About thirty-six hours previous to his death Dr. Fleming had a conversation with him, and found him perfectly intelligent. After a short time, however, he lapsed into a muttering delirium; and it may be remarked that the incontinence of urine passed into retention during the last few days of his life, and that after death the bladder was found distended with urine.

At the *post-mortem* examination particular attention was directed to the kidneys, the bladder, and the prostate gland. The kidneys were removed with difficulty in consequence of surrounding abnormal adhesions so intimate that the capsules were detached, being intimately adherent to the surrounding peritoneum and adipose tissue. Both kidneys were greatly enlarged, and numerous morbid deposits, of a whitish-yellow colour, some distinct and almost miliary, and others interstitial and diffused, were visible on the surface of each; and a vertical section exposed the same condition pervading the cortical and tubular portions most extensively. The malignant character of these deposits appeared to Dr. Fleming to be unmistakable, although some doubts were entertained respecting the results of the microscopical examination.

The state of the kidneys in this instance most closely resembled what was noticed in another case, which Dr. Fleming had exhibited before the society, where encephaloid tubercles were found in these organs, in the bladder, one of the ribs, &c.

The condition of the bladder presented nothing deserving of notice beyond the columnar arrangement of its muscular fibres, so constant in cases of prostatic enlargement. The prostate gland was large, very hard, and nodulated; and a section of it showed an isolated tumour, apparently cystic in its nature, and confirmatory of Mr. Paget's remarks on the subject.

Altogether the specimen was very instructive to the surgeon, and confirms the opinions that the commencement, as well as the existing symptoms, in many of the diseases of the urinary organs is most treacherous; that all suffering will be referred to the region of the bladder, as being the sole organ affected in one class of cases; while in another all the distinctive symptoms will be referred to the region of the kidneys, and yet the bladder alone will be found to present local lesions.—*January* 2, 1867.

Tumour of the Breast.—Dr. Smyly exhibited a tumour removed from the breast of a woman, aged about thirty years, in the Meath Hospital. It appeared that about seven years ago she accidentally felt a small tumour just under the nipple, but she never suffered any pain or inconvenience from it. About two years afterwards a clear fluid began to flow from the nipple. This went on without any change for three or four years. About three years ago the tumour commenced growing rapidly. When first seen by Dr. Smyly it was about the size of an orange. It gave her considerable pain at the menstrual period, when it assumed a red colour, but caused no uneasiness during the intervals. An accurate examination having shown it to be of a cystic nature, it was tapped, and a large quantity of fluid was drawn. A drainage tube was introduced, and kept for a long time, till the tumour, in fact, had nearly disappeared; but in a few months after its removal the sac filled again, and the woman sought medical aid. I then tapped it a second time, and the fluid drawn off was of a dark colour.

The tumour then inflamed slightly, and when empty this time there was some solid matter felt in the walls of it. It again returned, and was tapped a third time about a year ago. The wound never quite healed after the third tapping; there was a continual oozing of a clear limpid fluid.

A few days ago the breast was removed. It is an interesting specimen, as showing how, in the course of events, a simple cyst may become proliferous, and ultimately end in the true adenoid tumour. It consists of a firm cyst, one half of it being filled by small pedunculated growths. There was, in addition to the large cyst, numerous small ones in the surrounding fat. These were subsequently removed with the scissors.—*January* 12, 1867.

Cancer of the Breast.—Mr. Collis presented a tumour, removed from the mammary region of a female aged about forty, unmarried, and in good general health. The points of interest which it presented were that it originated at the most internal part of the gland, and that it presented well-marked characteristics both of scirrhus and of encephaloid side by side. The tumour had been first observed three months ago, although its origin probably dated further back. The point of the breast first attacked lay as far as possible from the axilla, at the innermost point of the gland. At this spot some hardness and swelling were noticed accidentally three months ago, the swelling being flattened somewhat, and in size about that of a bean. The skin over this spot was not exactly adherent, yet somewhat tied down; and the section of this part of the tumour shows the destructive characters of scirrhus. In a short time (three or four weeks) it was noticed that the swelling had extended outwards so as to implicate one-third of the gland, but still not reaching as far as the portion underneath the nipple. This part of the tumour was softer, more elastic, and more raised. Its outline, also, was more spherical. The nipple was small naturally, but not retracted. Section of this more recent part of the growth showed the pink hue, soft texture, and curvilinear outlines peculiar to the encephaloid form of cancer. This tumour was therefore interesting, as showing that there was no specific difference between these two forms of cancer beyond the slow growth of scirrhus and the rapid growth of encephaloid. Mr. Collis conceived that this was a favourable form of the disease, and one justifying the removal of the tumour, inasmuch as the part first affected was so distant from the axillary lymphatics as to leave more than half of the gland tissue of the breast sound. The age of the lady was a further reason for giving her a chance of prolonged life by removing a disease which appeared as yet limited to one spot. The axillary glands were lightly irritated, but not infiltrated.—*January* 12, 1867.

Glandular Tumour.—Mr. Collis exhibited an adenoid tumour, removed from the submaxillary region of a man aged forty-two, a patient in the Meath Hospital. It took three years to grow to its present size, and extended deeply under the jaw. The skin was stretched over it, but not adherent. It was removed by a single incision, and afterwards by the finger; its deep adhesions were considerable, both in number and strength. In removing it the principal nutrient vessel was torn, and Mr. Collis was surprised to find that the ligatures would not hold. The arterial hemorrhage was considerable, and rendered it hard to find the bleeding point; but this was seized again and again and tied, ineffectually, the ligature immediately slipping off. At length Mr. Collis got a momentary view of the bleeding point, and saw that the artery had been torn clean out of the side of a large vessel, which was manifestly the

external carotid. He passed an aneurism needle round it, and tied it and on doing so the hemorrhage ceased.

The ligatures came away in four days.

A section of this tumour, which was larger than an orange, showed a number of loculi of a rounded outline, filled with a gelatinous transparent material, which was simply an accumulation of the ordinary gland cells. There was nothing malignant about the tumour, which was quite isolated from the surrounding tissue, although ramifying deeply among them and mechanically adherent to them. This adhesion was the result of ordinary inflammatory processes, and was quite different from the poisonous infiltration which characterizes cancer. At the same time it was right to remove the tumour, as, sooner or later, by its pressure it would have interfered with the founctions of important or even vital parts.—*January* 12, 1867.

Abscess of the Liver.—Dr. WHARTON brought under the consideration of the Society the following notice of a case which was lately admitted to the Meath Hospital under his care. The patient was a lad, aged eighteen, of a well-marked strumous diathesis, and in whom the condition known by the term *leukdenic* was strongly observable. The cervical lymphatic glands were considerably enlarged, the complexion pallid, and the entire system much emaciated. There was neither cough nor diarrhea. Treatment was chiefly confined to the administration of wine and tonics. The clinical history was involved in much obscurity. It would appear, from the patient's account, that about a year ago he suffered from severe pain in the abdominal region, which commenced at its lower part, and gradually extended upwards, and that nine months ago an opening took place in the abdominal parietes, from which matter was discharged. This opening has since continued. On examination Dr. W. hazarded the opinion that the original disease was one of tubercular peritonitis, implicating the mesenteric glands, and finally giving rise, by means of the portal circulation, to the formation of hepatic abscess. He was chiefly led to this conclusion from the yellow colour of the discharge, which, mixed with pus, made its exit through the opening above adverted to. This opening was exactly midway between the lower border of the xiphoid cartilage and the umbilicus. On attempting to pass a probe through the orifice so much pain was induced that the attempt was abandoned, but on using moderate pressure above, a limited supply of the peculiar fluid could be obtained. The quantity discharged at night was so abundant as to coat the epigastric and umbilical regions, as well as to permeate the dressings. The patient having lingered for about three weeks in hospital, expired on the 13th of the present month. In three hours after death a hasty examination was made, for the purpose of verifying or falsifying the opinion which had been guardedly given to

the surgical class of the hospital as to the nature of the lesion which existed. On opening the abdomen there was no small difficulty experienced in introducing the hand between the liver and diaphragm, so intimate were the adhesions which prevailed; and when these were overcome no less difficulty was encountered in endeavouring to separate the organ from its posterior attachments. On removal of the gland (prior to which the opening in the parietes was traced to its origin, which was found to have been an abscess of the size of a filbert situate in the left lobe), a large quantity of purulent matter made its escape into the abdominal cavity, which also contained a considerable amount of serous fluid of an opalescent character, through which floated detached portions of thin and soft lymph, mingled with deposits of softened tubercular matter. The liver, which was exhibited to the society, displayed upon its convex surface and posteriorly a large number of abscesses of various sizes. No demonstrable communication was found between these, or any of them which were examined. It is difficult, however, to imagine how the small abscess connected with the opening in the parietes could have supplied so copious a discharge as that above adverted to.—*January* 19, 1867.

Acephalous Fetus.—Dr. M'Clintock said that he wished to exhibit to the Society a very good example of a monstrosity in the human subject which, happily, is not of frequent occurrence, but still sufficiently rare to make it worthy of being brought forward before the Society. This fetus was born in the Dundalk Workhouse, and was sent to him by Dr. Gartlan, of that town, two or three days ago. Owing to the coldness of the weather it has preserved its appearance perfectly, and is just now the same as it was at the time of its birth. It is an example of an acranial or acephalous monstrosity. I cannot say that it presents any unusual or strange appearance different from what is ordinarily found in this variety. I got no history or details of the case, and I have not had opportunity or time myself to make any dissection of it, so that I can only speak of its external characters. It weighs 4 lbs., so that, excepting the want of brain and neck, it is a tolerably well developed fetus. It is of the female sex, and its limbs are all perfect. It is very rare, indeed, in an acephalous monstrosity, to find the extremities perfectly formed. Coming to the other parts of the body you will see that there is a double hare-lip. The face is nearly horizontal. The tongue is projecting, which is owing, in a great degree, to the imperfect development of the inferior maxilla. There appears to be no neck, the head being shrunk down between the shoulders. There is a total deficiency of brain and a great deficiency in the spinal column. I cannot state whether the nervous structure of the spine may not be absent also. The eyes, as well as I can judge, are properly developed. We can well understand, by

looking at this instance, why these fetuses should have got the name given to them by the Germans—that of the cat-headed fetus, for it is not unlike the head of a feline animal. We can also see the propriety and fitness of the name given to them by the French—that of *tète du crapeau*, or frog's head, which it is not at all unlike. It would appear as if there was an actual deficiency in the vertebral column, but such is not strictly the case. If closely examined we will find the rudiments of the several cervical vertebræ, but very imperfect, and appearing to have been squeezed or fused together so as to take very much from the length of the neck. We can quite understand what the condition of the vertebræ is by looking at this skeleton of an acranial monster, prepared by Dr. Foot, a description of which was laid before the Obstetrical Society. Here is the head, and you can easily see what an exact resemblance it has to the head of a frog. In the cervical vertebræ there was the same condition as in the recent specimen before us, only in an exaggerated degree. The vertebræ took a great curvature anteriorly, and there is a total deficiency of the posterior plates.

This fetus was evidently alive up to the time of birth.—*January* 19, 1867.

Disease of the Mitral Valves.—Dr. Jennings exhibited a specimen of extreme obstruction of the mitral orifice, which he considered peculiarly interesting, as furnishing further proofs, in addition to the details of some similar cases which he had produced before the Society during the past session, of the frequent absence of morbid sounds in this variety of cardiac lesion. It was obtained from the body of a man, aged thirty-two, of emaciated appearance and intemperate habits, to which he attributed the origin of his illness. He was admitted into hospital on the 10th instant, suffering from difficulty of breathing, occasional orthopnea, cough, cardiac pain and palpitation, which latter symptom first attracted his attention about eighteen months previously, when he perceived that the slightest hurry or exertion induced rapidity and irregularity of the heart's action, accompanied by vertigo, which compelled him to grasp the nearest object for support, but which had never advanced to complete unconsciousness, nor had he ever suffered from seizures of an anginal or pseudo-apoplectic character. He also stated that in the course of the following months fugitive swelling of his face and feet further excited his alarm, and that since then his suffering had steadily increased, unalleviated by any treatment he had received.

When first seen attention was instantly attracted by the dusky complexion and intense anxiety of his countenance, although at the time he was lying on his back, unusually free from distress. The jugular veins were seen thrown into strong relief, distended to the utmost, and pulsating synchronously with the ventricular systole. The chest having

been exposed, tremulous motion of the heart was observed over a very extended area, reaching from the left nipple to the epigastrium, and this cardiac action was found, on auscultation, to be irregular spluttering, all ordinary rhythm being lost, and replaced by the most intensely rapid succession of systolic taps, interrupted by occasional pauses; neither then, nor on subsequent examinations, could bruit, or ordinary second sound, be discovered either at the base or the apex of the heart, nor pulsation at either side. Posteriorly, both sides of the thorax were semi-dull, and coarse puerile respiration was everywhere audible.

On the following day, as also occasionally afterwards until his death, which occurred on the 15th instant, he suffered from hemoptysis, but not to any serious amount.

Dr. Jennings remarked that although there might not exist any individual murmur or other symptom, specially diagnostic of any particular cardiac lesion, nevertheless when, as in the case under consideration, so many indications of a positive and negative character were grouped together, viz., the existence of hypertrophy, and rapid and laboured, yet fluttering and irregular, cardiac action, contrasted with weakness or even total absence of radial pulse, the absence of all morbid murmur, the presence of venous stasis and pulsation, he considered that they constituted a train of evidence conclusive of the existence of mitral contraction. In his opinion, the practical physician was not at liberty to attach any value to the so-called *pre-systolic* murmur maintained by some to exist in the affection, as he had to repeat his belief, formerly expressed, that the parallel that had been drawn by Sir Thomas Watson between the sounds induced by the flow of a river under a small arch and of the blood through constricted openings, only held true of its *direct* escape through the aortic and pulmonic outlets, the thin walls of the auricles not possessing sufficient power to induce any such sound. This remark he did not, of course, intend to apply to cases of regurgitation through the mitral and tricuspid apertures; murmurs would, no doubt, exist under such circumstances, but would necessarily be *systolic* in character.

On opening the pericardium, the heart, as had been anticipated, was found enlarged. Both auricles were nearly double the ordinary size, the right being filled by an immense gelatiniform polypus, which, when removed, accurately represented the internal aspect of the cavity; the left was occupied by dark-coloured coagulated blood.

The lining membrane presented some scattered patches of scarlet colour—the seat of incipient atheromatous deposit.

Both ventricles were firm to the touch, red in colour, and hypertrophied. Their apices were on a level, and separated by a sulcus a quarter inch in depth. On a section being made, the thickness of the apex of the right was found to measure $1\frac{3}{4}$ inches, and the "carneæ columnæ" were seen developed to an unusual degree. Its cavity contained a large polypoid concretion, which extended for a considerable distance into the pulmonary artery; the left was nearly empty.

The tricuspid opening measured in circumference 5½ inches, and the posterior division of its valve contained a large circular opening capable of admitting the index finger.

The mitral valves were converted into thick osseous plates, presenting at their free margins the well-known semi-lunar fissure.

The zona tendinosa surrounding this aperture was converted into a mass of bone of a circular form, and extending into the muscular structure of the ventricle to the depth of fully one inch. Springing from its auricular aspect was seen an irregular mass of warty vegetation, gritty to the feel, and very brittle—in fact, one or two particles were found detached in the auricle. These vegetations overhung the narrow fissure of communication, and must have greatly added to the difficulty of passage otherwise produced. One long ridge stretched round in the posterior wall of the auricle to near the attachment of the appendix. The pulmonary veins were greatly distended with blood, but their orifices did not seem sensibly enlarged.

The aorta was reduced in size, and the lining membrane of both arteries and veins was of a bright scarlet colour.

The lungs presented several spots of recent apoplectic extravasation.—*February* 19, 1867.

Acute Myelitis.—Dr. M'Swiney said the patient from whose body the parts before the Society were taken was a boy, aged ten years, who was admitted—in strong convulsions—into Jervis-street Hospital on the morning of the previous day.

When Dr. M'S. saw him he was absolutely insensible—his face was pale; his eyelids were nearly closed; his eyes, instead of being, as is common in convulsions, turned up in a fixed manner, or moving from side to side, were rolling in a circular manner round the orbit; the pupils, at first dilated, were afterwards rather contracted, and responded to the stimulus of light. He was convulsed continually over all the body in the most violent manner that he had ever witnessed. The convulsions, which were epileptiform in character, affected both sides of the body equally; his hands were flexed, with the thumb drawn into the palm; his muscles, during the entire time he lived, were rigid, especially, of course, during the paroxysms; his back was stiff and bent, and he was evidently in the first stage of what became, in the progress of the case, confirmed opisthotonos.

The history which he received of the case was almost exclusively of a negative character. He had received no hurt; he had suffered from no violence or accident; he had not been known to have partaken of anything noxious to which could be ascribed the production of the convulsions His mother stated that he had been quite well, as far as she knew, when

going to bed the previous evening. She thought she remembered that he had complained of pain in his head. One circumstance of much importance in his (Dr. M'S.'s) opinion was mentioned, namely, the boy had, in common with numbers of the poor during the late very inclement weather, suffered much from cold and privation of food. He slept at night on a little straw, that was sometimes damp, and was rarely supplied with any covering save an old rug or sheet. He had gone to bed in his usual health the evening before, having eaten his supper heartily, and nothing more was known about him until in the morning he was noticed by his father to get up at seven o'clock and go out to pass water, as was his custom. He returned from having, probably, performed that operation, and in a few minutes the father noticed him to be in a "fit," and working in convulsions. He was brought to hospital shortly afterwards, and continued for fifteen hours, with scarcely one instant's cessation or intermission, working in these frightful convulsions without regaining consciousness for a moment, until released from his sufferings by death. During the attack there was scarcely any vomiting; once or twice he retched a small quantity of a mucous fluid, but that was all.

He was, naturally, most anxious to discover, if possible, the source from which these fatal convulsions had arisen; and he, therefore, had, in the first instance, the abdominal cavity examined. The intestines were cut open, with the view of ascertaining if there were any worms or other irritants in their tract, but none such were discovered. He also removed the kidneys, and found them in a perfectly healthy condition. The stomach contained a small quantity of the ordinary fluid proper to the healthy organ, and was not in the least inflamed. He next proceeded to examine the cerebro-spinal system. The process of taking out the brain and spinal marrow was one attended with so much difficulty and loss of time, he thought it due to Mr. M'Mullen, his talented and very attentive clinical clerk, to say that they had been taken out by him in a very careful and perfect manner. There was no evidence of any organic disease about the brain, but it was greatly and universally congested on the surface. The spinal cord, covered by its membranes, looked as if it had been dipped in blood, so intensely red and congested was it. Upon passing the finger along the cord there was distinctly to be felt, at a part corresponding to the lower dorsal vertebræ, a pulpy, softened portion, about two inches long. Upon splitting open the cord at this point—as he did now—it was found to be remarkably soft; in fact, diffluent, contrasting strikingly with the white, firm, normal structure higher up.

Here, then, Dr. M'Swiney said, in this well-marked myelitis was situate the cause of death. It was, perhaps, the most rapid case of softening of the cord on record; for it cannot be held that it existed before the attack of convulsions.

It also afforded, he thought, a well-marked example of acute myelitis

excited by damp, cold, and privation of food—causes which have sometimes been considered to have given rise to the affection.—*February* 9, 1867.

Bright's Disease.—Dr. M'Swiney said the morbid specimens which he now exhibited were taken from the body of a man, aged between fifty-five and sixty years, who presented himself at the dispensary of Jervis-street on Wednesday morning last, in a moribund state, and died on Thursday evening. His history was as follows:—He had been a soldier of the 18th Royal Irish; had been in China with Lord Gough, and engaged in active service for many years. He had been singularly healthy all his life, and remarkably temperate; and when on foreign stations had suffered only from ague. He had very considerable œdema of the legs when he presented himself at the dispensary; he had a tumefied abdomen, which pointed to the presence of fluid in the peritoneum; his respiration was fearfully accelerated and most distressingly difficult; his face was deadly pale, and his lips were blue; the heart's action was very rapid and disturbed, but not capable of conveying the impulse to the wrist, although exceedingly loud and apparently strong in the chest. His dyspnea, which was so great as to amount to orthopnea, was so distressing, that the least interference with him produced the utmost uneasiness—so much so, that no persuasion could induce him to take off his clothes, although dying; and he died dressed and standing up.

Dr. M'Swiney had no opportunity of examining the urine during life, but after death he introduced a catheter and drew off an ounce, which, on testing, he found to be highly loaded with albumen.

The kidneys presented a well-marked instance of that organic change called Bright's disease. The right kidney was of medium size and somewhat nodulated. The capsule peeled off with the greatest facility; the entire capsular surface was mottled in the ordinary manner peculiar to this form of the disease, and on opening the kidney its secreting portion was found to be all destroyed—a thin, long line of cortical substance was all that remained. The opposite kidney had not been touched as yet, and Dr. M'Swiney now showed with what facility the capsule peeled off, thus marking one of the varieties of this disease with the duplex symptoms of dropsy and albuminous urine. The liver was congested, and was adherent by rather easily broken down bands to the under surface of the diaphragm. The heart was large, and a considerable amount of fat existed on its surface; and no doubt, from its softness and the facility with which it was broken up by the fingers, interstitial fat also existed. The valves were healthy. The lungs looked, anteriorly, quite healthy, but on proceeding with the examination of the chest it was found—1st, that there was a considerable amount of adhesion on both sides between the opposed

surfaces of the pleura; 2nd, the chest contained about three pints of serum. Finally, the lower two-thirds of both lungs were splenified, contained no air whatever, and sank in water.

On the whole he thought this case was a good illustration of what took place during the progress of diseased kidneys, followed by fatty heart, and then unexpectedly influenced by the extremely cold weather, which, lately, has proved so fatal to persons already ailing. In fact, it might be laid down as a proposition that it made all the difference between life and death whether the thermometer stood at 50° Fahr., or 10° below the freezing point, in the case of persons already in a delicate state of health. The immediate cause of death in this case was pleuritic effusion compressing the lungs, and producing the most distressing dyspnea that he had ever witnessed.—*February* 9, 1867.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.[a]

TWENTY-NINTH ANNUAL SESSION.

Dr. Sawyer, President.

Pregnancy Complicated with Subacute Peritonitis.—Dr. Ringland briefly detailed the particulars of a case of pregnancy complicated with subacute peritonitis and ascites, which appeared to him to possess considerable interest, owing to its very exceptional termination.

Ellen Brown, a delicate-looking Scotchwoman, and apparently in very poor circumstances, was admitted into the Coombe Lying-in Hospital on the 13th of February, 1866, having just entered into the ninth month of her seventh pregnancy. Her first four pregnancies terminated at full term, and her convalescence in each instance was favourable. Her two subsequent pregnancies terminated prematurely at seven and seven and a-half months respectively, and her convalescence was, on both occasions, tedious and imperfect.

In the second month of her present pregnancy she felt at the umbilicus a constant dull pain, which, as time passed on, gradually extended, radiating from the point of origin, until almost the entire of the anterior walls of the abdomen became involved. Coincident with the first existence of the pain her abdomen abnormally enlarged, the umbilical fossa becoming gradually obliterated, and the skin presenting a tense glossy appearance; there was, however, no œdema of the lower extremities.

Despite these circumstances she experienced no pressing inconvenience

[a] These Reports are supplied by Dr. Geo. H. Kidd, Secretary to the Society.

during the first four months of her pregnancy, with the exception of an inability to sleep as soundly as usual. At the end of that period, however, dyspnea ensued, and the pain was at times intensified and more acute in character than previously. A troublesome cough—unaccompanied, however, by expectoration—shortly ensued, and an almost constant diarrhea greatly aggravated her distress. The quantity of urine voided was somewhat, but very little, in excess of the amount usually secreted by her, and she had never observed any alteration from its customary appearance. She at all times retained complete control over the sphincter. She has been, of necessity, obliged, for a considerable time, to remain in bed, but almost always in the upright position.

From the 5th to the 13th of February she was under treatment as an extern patient of the Institution, and was admitted on the latter date in consequence of great aggravation of her previous symptoms. Her size was now enormous; fluctuation was distinctly experienced over the entire of the abdomen; the outline of the uterus could not be felt; the pain hitherto existing around the umbilicus was aggravated by the least pressure; diarrhea was persistent; urine normal in quantity, and but slightly albuminous; she was greatly emaciated; her countenance was pinched, her tongue loaded, and her pulse 120—small and wiry.

Labour set in on February 23rd, three weeks before the completion of her full time. All the stages were short, and at its close she experienced considerable relief, more especially as regarded respiration and pain. The size of the abdomen, however, was but little diminished, and fluctuation remained as distinct as previously. The uterus could not be felt through the abdominal parietes, but manifestly contracted well, the placenta having been easily expelled without any hemorrhage whatever.

About twenty-four hours after the completion of her labour, she felt a sudden rushing away of a large quantity of fluid; and the attention of the ward nurse having been immediately directed to the fact, the bed was found deluged with the discharge, of which several quarts were collected. The resident medical officers having been summoned, they ascertained that this fluid was eliminated per vaginam, and was entirely free from colour; that the abdomen had almost altogether subsided, and that the uterus could be easily felt well contracted in the pelvis. About an hour afterwards their attendance was again required, in consequence of a second discharge of fluid, very considerable in amount, yet infinitely less than on the preceding occasion. No lochia whatever was established, yet no untoward symptom of any kind supervened. She progressed rapidly to convalescence, and was discharged from hospital, at her own request, on the 5th of March, the eleventh day after delivery, no fluid appearing at that time to exist in the abdomen.

About ten days subsequent to her return home, however, the abdomen again enlarged, but was soon restored to its normal size by the discharge,

as before, of a large quantity of fluid; and this process was repeated on four subsequent occasions, two days having intervened between their respective recurrences. On the seventh day from the last of these discharges she perceived slight leucorrhea, which subsequently increased in quantity.

Mr. William Ormsby-Weir, the pupil midwifery assistant of the Hospital, who visited her from time to time, and who has most carefully collected the particulars of this interesting case, reports that, on the fortieth day from her labour, the ascites had altogether disappeared, that there existed no abdominal tenderness whatever, and that she was entirely free from cough and dyspnea; that she, however, complained of a dull constant pain in the lumbar region, and of slight bearing down pain when standing or exerting herself too much; but that, with these exceptions, her health and strength were completely restored, and that her appearance and condition were greatly improved.

In the consideration of this case, the question naturally and of necessity suggests itself, what was the *modus operandi* whereby the ascitic fluid was eliminated from the peritoneal cavity? This must, however, be in a great degree conjectural; but the most probable solution of the enigma appears to be, that, under the influence of the *vis medicatrix naturæ* the Falopian tubes became enlarged in calibre, and were converted into drainage pipes for the specific purpose.—*May* 12, 1866.

NOTE.—This paper was read during preceding Session, but not supplied for publication in time for the report.

A Case in which a Subperitoneal Fibrous Tumour of the Uterus Pressing on the Rectum was Raised from its Position by Hydrostatic Pressure. By JOHN RINGLAND, M.D.

M. B., a servant, aged 36, and apparently in robust health, came under my observation towards the close of last March, and was admitted into the ward for the treatment of the diseases of females in the Coombe Lying-in Hospital, on the 29th of that month. She had been married about fifteen years, but had not lived with her husband for the last six. She is the mother of five children, and nothing of an abnormal character attended any of her labours. She had menstruated regularly and healthily from the age of fifteen until about four years since, when she first experienced pain at each catamenial period, but there was no increase in either the quantity or its duration; some leucorrhea, however, persisted from this period during the entire of the intervals. During the last three years she at times suffered an uneasiness—at first not amounting to pain, but subsequently becoming much aggravated—in the sacral region, which was occasionally persistent for two or three weeks together, and

this was followed by an intermission of a somewhat like duration. She experienced the greatest amount of relief when in the recumbent position, especially when lying completely on her back; she could not, however, for more than two years past, lie on her left side, for even the shortest time, without intense pain. Her bowels have been always regular; but she suffers much pain at defecation, whether the evacuation be solid or fluid—to a much more considerable extent, however, in the former case than in the latter; the feces, moreover, when solid, invariably flattened.

On a vaginal examination, the os uteri was found to occupy its normal position in the pelvis; but a tumour of the firmness and size of the fundus of the uterus was found in the hollow of the sacrum, so firmly wedged down that no moderate amount of force by the finger, such as I felt justified in using, could reduce it; while no body, in any way resembling the uterus, could be felt by the hand placed above the pubes.

Every effort was made first by myself, and subsequently by Dr. Kidd, to pass the ordinary uterine sound into the cavity of the uterus, with the view to the reduction of that organ; but owing, in fact, to the great acuteness of the angle of flexion, which we subsequently satisfied ourselves had existed, and partly to the great patency that we found in the entire of the canal of the cervix, which offered no resistance whatever to the point of the instrument, but permitted it to slip out so soon as the least pressure was made against the superior portion of that canal, which was both curved and contracted, we both failed in effecting our object, until the anterior lip was caught by a tenaculum and the cervix brought down towards the floor of the pelvis, whereby, in a measure, the curve in the canal of the uterus was obliterated, and the whole of its cavity rendered approximately straight. The sound, which could now be introduced without much difficulty, as it passed, took a direction completely backwards towards the sacrum, and indicated an elongation of the uterine cavity by the extent of somewhat more than half an inch.

After the replacement of the uterus, which was effected with great ease, no alteration was found in the position of the tumour we had from the first felt in the hollow of the sacrum, although to the hand placed above the pubes the fundus uteri was now distinctly perceptible, moving freely with the movements of the sound. On examining per rectum, the finger could pass freely for about three inches, when its further progress was completely obstructed by the tumour, which lay almost in apposition with the sacrum, the walls of the rectum, as it passed round it, being quite in contact. The tumour was very firm, of globular shape, and attached to the uterus posteriorly, at about the junction of its body and cervix, by a small flat pedicle, which, on account of the great flaccidity of the abdominal parietes, could be easily traced, the manipulation and mode of examination for the purpose being that recommended by Dr. Marion Sims.

All manipulation per vaginam and per rectum having failed to move the tumour from its position, it struck me that a proceeding somewhat resembling that employed by the late Dr. Halpin, of Cavan, for the reduction of a retroverted pregnant uterus,—namely, by means of a bladder introduced into the vagina and then inflated with air, as described by him in a communication to this Society on the 2nd of January, 1840, which was published in the early series of the *Dublin Journal* for March of that year—but differing as to the individual details, might have the desired effect; and Dr. Kidd having coincided with me as to the feasibility of my suggestion, I introduced into the rectum a medium-sized Barnes' uterine dilator, the upper end of which was thus beneath, and in immediate apposition with the tumour; and the dilator having been gradually distended to its fullest extent with water from an ordinary syringe, I found the tumour moving from my finger, which I had placed in the vagina to ascertain the effect produced, and eventually passing entirely above the brim of the pelvis. A Hodge's pessary was then introduced with the view to maintain the tumour above the pelvic cavity and the uterus in its normal position.

The sacral pain was at once relieved, and she could walk without inconvenience, but for some days she had a slight bleeding from the rectum during defecation, which yielded to suppositories of tannin; she also complained of some difficulty in micturition, but this passed away without treatment.

I examined her on two or three occasions previous to her leaving the Hospital—which she was compelled to do sooner than I wished—and found that the pessary had maintained the tumour above the brim of the pelvis. On the date of her discharge, however, I learned that owing to the entire perineum having been lacerated in her first labour, the pessary, not having adequate support, had come away three days previously; and I greatly apprehend that the tumour will again descend within the pelvis, so soon as she resumes her occupation. Should this be so, the formation of a false perineum will, I conceive, give due support to the pessary, which, on its part, will, I feel no doubt, maintain the tumour in a position that will preclude pressure on any of the soft parts contained within the pelvis.

The peculiar position and pediculated form of the tumour in this case, together with its complication with the retroflexion of the uterus, are points of special interest, and it appears to me that it is by no means improbable that the former preceded and was the cause of the latter; in fact, I am of opinion that the tumour, placed as it was in almost direct apposition with the sacrum, and attached to the centre of the posterior wall of the uterus, pressed, in its growth, that point of attachment towards the pubes, whilst the cervix remained in its normal position; and that this pressure having been long continued, and become more

considerable as the tumour enlarged in size, eventually induced the yielding of the muscular structure of the body of the uterus, and the consequent flexion of its fundus backwards.

For the simple mode whereby the tumour was removed from the cavity of the pelvis I merit no credit, save the adaptation to this individual case of means which had proved successful, in Dr. Halpin's hands, in cases somewhat analogous; and it may not be out of place here to mention that twelve years subsequent to the date of this ingenious suggestion, another eminent member of our profession, Dr. Favrot, submitted to the Académie de Médecine of Paris a proposal to effect the same object by almost identical means,—a caoutchouc bladder introduced into the rectum, and then inflated by means of an India-rubber bottle and tube with stop-cock, being substituted by the latter for an ordinary bladder placed in the vagina, and distended with air through a catheter, as recommended by the former. A sketch showing the application of Dr. Favrot's apparatus is to be found in the *Dublin Quarterly Journal of Medical Science* for May, 1852, pp. 387, 388.

Dr. Halpin, in a paper in the *Dublin Quarterly Journal* for November, 1852, p. 491, mentions that the "*Réducteur à Air*" in the simple form recommended by him was successfully employed for a similar purpose by Dr. Brunker, of Dundalk, in 1844, by himself again in 1847, and by "other distinguished members of the profession." He at the same time takes exception to the apparatus suggested by Dr. Favrot on the grounds that "a caoutchouc bladder, with walls thick enough to bear a pressure of air that may be necessary to restore the uterus to its normal position will be found too clumsy to admit of its easy introduction into either the vagina or rectum." I cannot, however, agree with Dr. Halpin on this point, as I experienced no difficulty whatever in the introduction of Barnes' caoutchouc dilator. In conclusion, I shall merely add, that as I employed water for its distension, instead of air, as used by both Drs. Halpin and Favrot, I cannot offer an opinion as to the relative mechanical efficiency of these two agents, but can only express myself as thoroughly satisfied with that which has proved in this instance successful in my own hands.—*8th June*, 1867.

Dr. A. W. Foot *read the following report of the Dissection of a Monster:*

Dr. M'Clintock kindly gave me the malformed fetus, whose skeleton I exhibit this evening, on conditions that I would report upon the nature of its deformities to the Obstetrical Society. Upon dissection it proved to be an example of arrest in the formation of the brain and spinal cord, co-existing, as is usual in these cases, with a special and very constant developmental failure in the vertebro-cranial canal; and superadded to these fatal defects are the less rare lesions of double fissure of the palate and double hare lip. Hard names have been invented to express each of

these malformations by writers on teratology, but the explanation they generally require is an obstacle to their common employment. Two years ago I was enabled, through the kindness of Dr. Cronyn and Dr. Telford, to read an account of the dissection of a monster similar to the present one before this society, and so strong is the likeness between the two that the photographs which I had taken of the former would pass for representations of the present specimen in its recent state. Vrolik remarks upon the interesting constancy of appearance which the subjects of this form of monstrosity present, on which account the malformed fetuses resemble each other nearly in every museum, and he thinks this a proof that the origin of the malformation cannot be accidental.

I am not in possession of the facts connected with the birth of the fetus or the history of its mother during her pregnancy. It would be interesting to know if the liquor aminii was in excess, as in the case which I exhibited here on a former occasion. The liquor aminii, in that case, was very abundant, and Dr. M'Clintock, in a paper on dropsy of the ovum, has shown that a morbid excess of liquor aminii, or perhaps the morbid action from which it results, seems to be very unfavourable to the well-being of the fetus. This fetus, as the former one, was of the female sex; it weighed three pounds ten ounces and a quarter, and from the forehead to the heel measured twelve and a half inches; its extremities were normal in all their parts, well formed, and covered with a layer of adipose tissue, in some places a quarter of an inch thick. Though small and light, it bore the external marks of a mature fetus; the nails reached the tips of the fingers, the eyelids were open, and the pupillary membranes absent; the labia majora concealed the clitoris and entrance to the vagina, the rectum contained dark olive-green viscid meconium, the skin was free from down, and covered more or less with vernix caseosa, while dark hairs an inch and a quarter in length fringed the sides of the deformed skull. The flattened head, implanted between the shoulders, presented, in place of a calvarium, a tough, red membrane continuous over the frontal bones and along the sides of the head, with the common integument. This membrane extended backwards along the spine towards the sacrum, tapering to a point at the commencement of the lumbar vertebræ. The brain was represented by a thin layer of sanguineous pulp, which occupied the shallow space between the base of the cranium and the tough, red membrane which was stretched across the top of the head between the lateral boundaries of the skull. The parietal, the temporal, and the lateral portions of the occipital bones were widely separated and distorted, both by the floor of the skull being pushed up like a wedge between its sides, and by a strong lateral curvature to the right side, which brought the posterior parts of the cranium on the right side much nearer the sacrum than those on the left. The entire vertebral canal was open posteriorly, forming a wide shallow groove, whose floor

was formed by the posterior aspects of the bodies of the vertebræ. There was no appearance whatever of a spinal cord in any part of this groove, which was immediately laid open by raising the red membrane in the upper two-thirds of the back, and the common integument in the lower third of the back. The central extremities of the spinal nerves were seen occupying the intervertebral foramina; they terminated abruptly in this situation, being connected with the tough fibrous lining of the exposed and vacant vertebral canal. In a similar manner were seen the central ends of some of the cerebral nerves; the second pair, and the divisions of the fifth were the most distinct. The peripheral distribution of the nerves, both cranial and spinal, was regular, as far as was exhibited in a dissection not made specially for the study of the nervous anatomy. The ribs on the right side were closely crowded together, and encroached very much upon the cavity of the thorax in consequence of the strong lateral curvature of the spine. The viscera of the thorax and abdomen presented no anomaly.

In reporting upon this fetus I have confined myself strictly to a mere description of its appearance and condition, without discussing its etiology. It was one of those species of malformations in which the brain and spinal cord are either entirely absent or in the merest degree rudimentary, a defect usually accompanied with deformity of those parts of the skeleton subservient to the protection of the cerebro-spinal axes.

TRANSACTIONS OF THE COUNTY AND CITY OF CORK MEDICAL AND SURGICAL SOCIETY.[a]

SESSION 1866-67.

Dr. Cremen, President, in the Chair.

Cholera.—A Report of Thirty-eight Cases of Cholera Occurring Consecutively in the City of Cork during the Outbreak of this Year (1866)*; Recording the First Case and Introduction of the Epidemic.* By F. A. Purcell, M.D., M.R.C.S.; Secretary to the County and City of Cork Medical and Surgical Society.

A great deal has been said and written both for and against contagion of cholera. Being fully impressed that cholera is contagious, I am induced to seek and to bring before you any positive fact that I can substantiate. I look on it as a thing of the greatest importance to record the means whereby cholera is introduced into a place. I may be asked why is it that, in these days of easy and rapid transit, cholera did not long before

[a] These reports are supplied by Dr. Purcell, Secretary to the Society.

appear here, more especially since Cork is in constant communication with London, Bristol, Liverpool, Dublin, and many other places where the epidemic has been raging, including Mallow, a town twenty-one miles off? My answer is, that though a person may come to a place direct from a district in which cholera is raging, yet that person and his clothes are exposed to one of our very best and truest disinfectants, namely, currents of pure air. To this I attribute our exemption for so long a time. In every epidemic of cholera we have had sporadic cases recorded occurring some weeks previous to the outburst; time, therefore, is given for the dissemination of the poison. In 1832, in Cork, the first case of cholera was a child, eleven years of age, on the 5th of April, and died in thirteen hours. No case then occurred until the 13th and 14th, when several well-marked cases occurred in the neighbourhood of the Coal-quay and Paul-street. This locality is low, and consists of narrow, ill-ventillated lanes, having a densely crowded population, living in poverty, wretchedness, and filth. In 1832 a strict quarantine was established upon all vessels arriving in the harbour from suspected ports. The epidemic had existed for some weeks in Dublin before it appeared in Cork. From the 16th April to the 8th of May 308 cases of cholera were entered on the books of the North Charitable Infirmary, of which sixty-seven died. It was remarked at that time that the majority of patients who were first attacked were old army and navy pensioners, poor market women, and prostitutes. Scarcely one of the former or latter class survived. The number of females attacked was very nearly three times that of the males.

On the 7th of September of this year (1866) I find recorded on the books of the Fever Hospital a case of cholera, my attention being drawn to it by Dr. White, the resident physician, from which I take the following. She was admitted under Dr. M'Evers.

Margaret Barrett, aged thirty-five, married, 1, Little Cross-street, sent by Dr. Wycherley (this is off the flat of the city).

Sept. 7th.—Had vomiting and purging since twelve o'clock last night, till two the day admitted. Pulse imperceptible; tongue foul and moist; lips cold and livid; extremities cold; purging and vomiting ceased.

Ordered half a drachm of tincture of opium and of aromatic spirit of ammonia in brandy and hot water.

Hot jars to feet; hot water bags to stomach.

Nine o'clock.—Vomited again, and cramps; sinapism to pit of stomach, &c. No record of the urine. She recovered, and was discharged from hospital September 21st.

There is no doubt that this was a pure case of Asiatic cholera, and luckily recovered. She was let go out of hospital without much questioning. I have since met her, and the following is her own story. She is poor, with one child; her husband a constant inhabitant of the work-

house. On the Monday before she was attacked (August 30) she bought two pairs of old corduroy trousers, in order to mend them, and turn an honest penny, from a woman at the North Gate Bridge Hill, who had imported a lot of old clothes from London, those among the number. This woman had been prevented selling these articles by the police, and, in consequence, took them to Bandon, where she was again prevented. She returned with them to Cork. Barrett bought these two pair of her cheap. She mended and sold one pair the same day to a woman at the South Gate Bridge. The second pair she intended to cut up and make suitable for a boy, but sold without doing anything to them for the use of repairs, on Monday, September 6th, the day she was attacked; she therefore had the second pair lying in her room a full week. I have no reason to doubt this woman's story, and therefore place a great deal of importance to it.

Four deaths then took place at No. 21, Great Britain-street, at the north side of the town between the 29th of September and 6th of October, two of which, though not seen by a medical man, from their history I have no doubt were cholera. They were two beggars, a man and wife, named Mullane, both old. They had, some ten days previous, travelled from Mallow, and put up at this house. On Saturday night the wife, aged sixty-five, was attacked with purging and vomiting and cramps, and died Monday morning, October 1st. The husband, aged seventy, on returning home after burying his wife, was attacked and died Tuesday morning, twenty-four hours ill. The two other deaths were children, twenty months and eight months respectively, of a man named Walsh, who came from Queenstown, September 24th. These Dr. Callaghan saw, and reported not cholera.

Oct. 4—Case 4.—The next well-marked case was that of Mrs. Kelleher, aged thirty, living at 2, Cross-quarry-lane. She was at work, washing during the day, Thursday, 4th October, at Mrs. Reardon's, the owner of 21, Great Britain-street. She was attacked at seven o'clock with vomiting and purging, and died Friday night, twelve o'clock; twenty-nine hours ill.

2, Cross Quarry-lane stands over and above 99, Clarence-street, a slaughter house, a nest of filth, with an abominable stench. No communication from the yard to the street sewers.

Oct. 6—Case 5.—Morey, a child aged nine years, 68, Fair-lane, a butcher's child; the father a drunkard, and all the family in abject poverty; attacked 3 o'clock, a.m., Saturday, 6th October. Characteristic rice-water purging and vomiting; cramps, loss of voice; surface cold and shrunken; suppression of urine; died same day, 5 p.m.

Oct. 6—Case 6.—Healy, Margaret, Blaisley-street, working at a Mrs. O'Neil's, 109, Clarence-street, corner of Quarry-lane; attacked 6th October; died on the next day, 11 a.m.

Oct. 7—Case 7.—Denehy, Wm., a clerk; consumptive; 5, Watercourse; attacked 4 a.m., 7th October; died same day, 10 o'clock p.m.

Oct. 7—Case 8.—Doyle, Paddy, aged forty, lodging at Mrs. Reardon's, 21, Great Britain-street, the fourth in connexion with this house. Came from Fermoy the week previous; became exceedingly nervous and frightened on hearing of the four that had died in the house; attacked October 6th; went to the Fever Hospital October 7th, and died Monday evening, October 8th.

Oct. 7—Case 9.—Sheehan, Hannah, aged twenty-three, nursing, 104, Great Britain-street; attacked with vomiting and purging October 7th; had consecutive fever, and recovered.

Oct. 8—Case 10.—Walsh, Ellen, aged thirty, servant at O'Keefe's, publican, 91, Great Britain-street; attacked October 8th: sent to hospital; died October 11th.

Oct. 8—Case 11.—Manning, Donald, aged forty, lodging 14, York-street; purging since the 4th; sent to hospital October 8th. Recovered.

Oct. 9—Case 12.—Mahony, Leah, aged eight, 23, Moriarty's-lane; attacked 10 a.m., October 9; sent to hospital; died October 12th.

Oct. 9—Case 13.—Mahony, John, aged fifty, father of the last; attacked same day, October 9th, while at work: sent to hospital; died October 11th.

Oct. 10—Case 14.—Walsh, James, aged forty, 3, Bridewell-lane, the locality of Case 1; sent to Fever Hospital October 10th: dismissed; was attacked subsequently, and died outside.

Oct. 10—Case 15.—Crowley, Mary, aged fifty, living at 24, Great Britain-street, presented herself to me at the dispensary October 10th. Whilst speaking to her she fell back from exhaustion, and passed a large rice-water evacuation. Having all the symptoms of cholera on her, I gave a dose of opium and brandy, and sent to hospital. Recovered.

Oct. 10—Case 16.—Captain ——, of a brig lying off Patrick's-quay; attacked on board October 10th; visited by Dr. Callaghan, who took me to see him. Recovered.

Oct. 10—Case 17.—Ford, Mary, aged seventy, Hatton's-alley, off Great Britain-street; attacked October 10th; died same evening.

Oct. 10—Case 18.—Collins, Jeremiah, aged sixteen, 25, Gill Abbey-street, south side of the city; attacked 1 a.m., October 10th; attended by Dr. Golding and seen by Dr. O'Connor; subsequently placed under my care, and died 2 p.m., October 11th; I drew off a quart of urine from the bladder one hour previous to death.

Oct. 13—Case 19.—Shine, Mary, aged sixty, Backwater-course, Blackpool; attacked October 13th; died same day.

Oct. 14—Case 20.—Dorney, Ellen, aged sixty, 4, Quarry-lane; attacked October 14th; died same day; wife to Case 32, and grandmother to the Noonans, Cases 25, 26, 27, and 28.

Oct. 14—Case 21.—Vaughan, Hannah, aged forty, 11, Quarry-lane; attacked October 15th; died same day.

Oct. 15—Case 22.—Mulcahy, Ellen, aged three, Narrow-lane; attacked October 15th; dead when visited.

Oct. 16—Case 23.—Davidson, Eliza, aged twenty-three; admitted to Fever Hospital October 14th, for mild fever, and placed in the convalescent fever ward. She was attacked at 9 a.m., October 16th, with rice-water vomiting and purging, and was removed at once to the cholera ward. She ran through the different stages of cholera, and died in consecutive fever October 24th.

Oct. 15—Case 24.—Fitzgerald, Ellen, aged seventy, Keser's-hill, first case in Dr. Fowler's district. Sent to hospital October 15th, in collapse; died October 16th.

Oct. 15—Case 25.—Vaughan, Ellen, aged four, 11, Quarry-lane, sister of Case 21; admitted October 15th to fever hospital. Recovered.

Oct. 18—Case 26.—Noonan, Mary, aged ten, 4, Quarry-lane; sent to fever hospital October 18th. Recovered.

Oct. 18—Case 27.—Noonan, Wm., aged seven, same house; sent to hospital October 18th. Recovered.

Oct. 18—Case 28.—Noonan, Jeremiah, aged thirteen, same house; sent to hospital October 18th; died October 21st.

Oct. 20—Case 29.—Noonan, Dan., aged four, same house; brought to hospital by its grandfather, Dorney, October 20th; died October 21st.

Oct. 21—Case 30.—Callaghan, Bridget, aged twenty-five, a prostitute, from Evergreen, brought to the fever hospital from off the streets by the police, by whom she was found vomiting and purging; admitted 2 a.m. October 21st. She was progressing favourably when, at 2 a.m., October 24th, a companion of hers was admitted to the ward in collapse, which suddenly brought on again vomiting, and purging, and cramps, and she died the next morning, October 25th.

Oct. 21—Case 31.—M'Carthy, Catherine, aged twenty-three, a prostitute, from Evergreen; admitted to fever hospital October 21st; died same day.

Oct. 22—Case 32.—Dorney, Dan., aged sixty-four, grandfather to the four Noonans, and husband to Case 20, that died; admitted to hospital October 22nd, and died next morning.

Oct. 24—Case 33.—Murray, Hannah, a prostitute, from Furge's-alley; admitted to the fever hospital, in collapse, October 24th; died next day.

Oct. 23—Case 34.—Collins, James, aged forty, 2, Brockalby-street; attacked October 23rd; died same day.

Oct. 23—Case 35.—Noonan, Pat., 2, Cross Quarry-lane; attacked October 23rd. Recovered.

Oct. 25—Case 36.—Wooll, Maryanne, aged five, Bennett-street; attacked Thursday night, October 25th; died next day.

Oct. 26—Case 37.—Clare, Honora, aged thirty-six, 30, Spring-lane admitted to fever hospital October 26th; died 27th.

Oct. 26—Case 38.—Butler, Ralph, aged twenty-one, 40, Prince's-street a mason; admitted to the fever hospital, October 19th, with typhus; seized whilst in bed in the fever ward with purging and vomiting at 3 p.m., being at the time under the influence of mercury for chest complication. He died, from cholera, October 27th, sixteen hours ill.

One or two cases occurred on the flat of the city, in Dr. Cremin's district, that I have no record of; as also six cases were admitted into the workhouse, under Dr. Popham, prostitutes from the same locality as those that were admitted to the fever hospital.

Let me draw attention to Case 23. Eliza Davidson, who was attacked in the convalescent fever ward of the fever hospital with cholera, and died. Also Case 38, Ralph Butler, who was in hospital labouring under pneumonia and under the influence of mercury for same, was attacked on the seventh day from admission, and died from cholera.

As no medical officer of health is attached to the city, I am induced to record the particulars of this outbreak of cholera, and I have to thank the several medical gentlemen for their kindness in giving me every opportunity of seeing and following up the different cases that occurred in their practice.—*October* 24, 1866.

Diseased Bursa.—A pathological specimen, presented by H. R. Hadden, M.D., F.R.C.S.I., Clonakilty.

This pathological specimen was taken from a man about fifty years of age, a sawyer by trade, who suffered from an enlarged patellar bursa of the right knee, which but little interfered with his work till about a year since, when the skin over the most prominent part of the tumour sloughed and left an opening the size of a florin, through which the bursa itself could be seen and felt. On Tuesday last I saw it for the first time; and as he was completely incapacitated from work, his health sympathizing, and the tumour looking rather suspicious, being covered, in spots, with fungoid granulation, with the skin, for nearly two inches around the opening of a dusky bluish-red colour, puffed and infiltrated, very unhealthy grumous pus exuding from between it and the tumour—I advised its speedy removal. Next day he was admitted to hospital, and after a few days' good feeding (for he was much broken down by intemperance and poverty) I removed it by the elliptical incisions which the specimen presents, taking care not to separate the fascia of the leg from the edges of the patella.

The points of interest are these. The *sense of fluctuation was most distinct*, and to even well-educated fingers would convey the idea that a small puncture would evacuate the whole contents; and as the skin

seemed so extensively diseased, I thought I would just lay the whole open with a simple incision, and heal it from the bottom; but being suspicious of it, I first introduced an exploring needle, when, to my surprise, a jet of florid blood projected along its groove with great force, and when withdrawn a stream jetted from the puncture as if from the cut end of a small vessel. Thinking that it might have come across one in the walls of the tumour, I punctured another place, but the same thing occurred, so I at once abandoned this idea and extirpated the whole mass, with the loss of not more than a wineglassful of blood, and meeting only a few insignificant vessels. The examination of the tumour solves the, to me, very puzzling circumstance at the time. Of the jets of blood, as it is found to consist of a number of compartments filled with blood in all stages of organization, and bounded by the fibro-cartilaginous septa which intersect the tumour in all directions, and which, when examined under the microscope, present a great number of nucleated cells not unlike cancer cells, but which, when treated with acetic acid, do not present any difference between the cell-wall and nucleus—in fact, the sections of these septa present exactly the appearance of Müller's enchondroma, as described at pages 170 and 343 of *The Microscope in Medicine*, by Dr. Beale. The question arises, was this tumour originally a simple enlarged bursa, into which blood was effused and organized? or is it a degenerated enchondroma?

Then, as to the unhealthy appearance of the skin, was it necessary to remove so much? To look at it now, after its removal, one would say decidedly not. Yet I imagine, from its appearance and hardness *before*, any prudent surgeon would have done so, although if one could have left a little redundant skin to allow of the flexures of the joint instead of having the lips of the wound barely closed, it would have been a great advantage. With my experience of the condition of the skin after removal as you now see it, I think I would leave it, were I called to treat a similar case again, notwithstanding its very suspicious character and that of the fluid which oozed from it.—*November* 28, 1866.

CLINICAL RECORDS.

Successful Operation for Vesico-Vaginal Fistula. By R. Boyle Travers, M.R.C.S., Eng.; Med. Off. Aghada Dispensary.

Two years ago, M. B., residing at Aghada, had a tedious labour (her first), during which the funis was prolapsed and pulseless. I perforated

the head, and delivered with the crotchet. She made a speedy recovery. Four months ago she gave birth to a second child, which was born dead, without instrumental aid, after a tedious labour like the former. Soon after she found she could not retain her urine, and applied to me for relief. I found her urine constantly dribbling away, in every position but when she lay on her face; and then she could retain it for a short time. She suffers much from excoriation of the labia and thighs; and her inner garments, rotten and saturated with the rapidly decomposing urine, give out a most offensive smell.

On introducing a silver catheter into the bladder, and passing the fore finger along the line of the instrument, I discovered an opening of considerable size in the vesico-vaginal partition, the finger coming into contact with the catheter at this point. In a subsequent examination, having placed the patient on her knees and elbows on a table, opposite strong solar light, I introduced Dr. Marion Sims' duck-bill speculum, by which a flood of light was thrown down on the whole anterior wall of the vagina, and the fistulous opening in the bladder was fully exposed. It was rather high up, and its long axis transverse, and readily admitted the fore finger to pass into the bladder. I explained to the poor sufferer the nature of the injury, and the means necessary for her relief, to which she readily assented. Having waited for a week after a menstrual period, with the assistance of a medical friend I proceeded to perform Bozeman and Sims' operation as follows:—

Having placed the patient on her knees and elbows upon a table opposite a good light, I introduced the duck-bill speculum, and fully exposed the fistula. With a fine, long-shafted hook I caught up a pyramidal portion of the mucous membrane of the lower lip of the opening, and transfixing its base with the straight spear-shaped knife, so as to split the edge, I removed an eliptical portion of mucous membrane from the lips of the fistula. This stage of the operation was difficult, and required time and patience, from the depth at which the parts lay, and the bleeding which obscured the view; but it was much facilitated by constantly using a long-handled little sponge-mop soaked in a strong infusion of matico for suppressing the hemorrhage, as recommended by Dr. Churchill, of Dublin.

I now passed Simpson's tubular needle deeply into the lower lip, about one-fourth of an inch outside the raw edge, and pushed it onwards through the yielding upper lip, using Bozeman's blunt hook as a point of support.

The iron wire was now passed through the needle, and seizing it with a long forceps, as it emerged from the tube, with the help of Bozeman's little fork I readily drew it down, without tearing the parts through which it passed, the wire gliding through, and supported by the jaws of the fork, as a rope runs over the groove of a pulley.

Having introduced all the sutures I adjusted the lips of the fistula, partly with my fingers and partly with Bozeman's fork. I then carefully separated each row of wires, and passed their ends through a small oval plate of sheet lead, pierced with two rows of holes, the upper set of wires passing through the upper row, the lower through the lower row; then holding all the wires in my left hand and drawing them tight, I pushed the leaden shield close up to the fistula. Then running the suture twister along each pair of wires up to the shield, I secured them with two or three twists, cut off the ends above the twister, pressed down the projecting points with my forefinger, and the operation was complete, having occupied nearly two hours.

I now introduced Sims' sigmoid catheter, and directed that one grain of opium should be given every six or eight hours. The catheter to be cleared occasionally by running a fine wire through it.

April 26.—No hemorrhage has taken place. Urine trickles freely through the catheter, which I took out, cleaned, and re-introduced. The opium to be continued; the vagina to be washed out with tepid water.

April 27.—On visiting this day I found that she had removed the catheter; that it had been out of the bladder for eighteen hours, and that she had passed water two or three times *pleno sivo* through the urethra. I re-introduced the catheter, and directed that the opium should be continued.

May 2.—Urine flows constantly through the catheter; none has escaped per vaginam since the operation. As the bowels had not acted for eight days I now gave a common purgative draught, which acted well.

May 8.—On this day—the thirteenth since the operation—I carefully introduced the speculum and cut the wires above the twist. The shield and wires were then easily removed by gently raising the shield with a forceps.

I was much gratified to find that perfect union had taken place in the whole extent of the fistula.

She continued to wear the catheter for a few days longer, when I removed it altogether, desiring her to pass her water every three or four hours for a few days.

May 20.—She has now perfectly recovered, and the bladder has regained its full power and functions.

Perhaps no condition is more melancholy or more loudly appeals to the resources of our art than that of the wretched sufferer from perforation of the vesico-vaginal septum, whether it be caused by the use of instruments, or as the sequel of difficult or powerless labour, as in the above case. Hitherto this sad condition has been irremediable, and regarded as one of the opprobria of surgery; but the recent labours of

Dr. Bozeman, of Alabama, Dr. Merion Sims, of New York, and especially Sir James Simpson, of Edinburgh, have been crowned with success. The silver-wire suture, duck-bill speculum, and catheter of Sims; the button-shield and various subsidiary implements of Bozeman; and the tubular needle, iron wire suture, and splint of Simpson, having now rendered the operation almost as successful as that for hare-lip.

LONDONDERRY CITY AND COUNTY INFIRMARY, AND CITY FEVER HOSPITAL.

REPORT FOR THE YEAR 1866.

By T. H. Babington, M.D., T.C.D., M.R.I.A., *Surgeon to the Infirmary.*

Numerical Return of Patients Admitted into and Treated in the City and County of Londonderry Infirmary for the Year 1866.

Patients Remaining 31st December, 1865,	39	
Admitted,	551	—Total, 590
Discharged Cured and Relieved,	486	
„ Died,	35	
„ Irregular,	7	
„ at own desire,	16	—Total, 554
Remaining 1st January, 1867,		36

Total number of Days, 16,019.

City Fever Hospital Report for 1866.

Patients Remaining 31st December, 1865,	17	
Admitted,	203	—Total, 220
Discharged Cured,	176	
Died,	21	—Total, 197
Remaining 1st January, 1867,		23

Total number of Days, 6,137.

Number of beds in hospital, Males, 48; Females, 24—Total,	72
Number of Beds in Fever Hospital,	32
Total number of days passed by Patients in Hospital,	16,019
„ „ „ in Fever Hospital,	6,137

Average Cost of Hospital and Fever Patients, including all expenses,	£2	7	0¾
Average Cost of Hospital and Fever Patients, exclusive of Salaries and Wages, amounting to £545 6s. 4d.,	1	13	7
Daily Cost of each Patient, including all expenses,	0	1	8½
Daily Cost of each Patient, exclusive of Salaries and Wages, amounting to £545 6s. 4d.,	0	1	2½

Numerical Abstract of Cases of Accidents, Diseases, and Deaths, for the Year 1866.

ACCIDENTS.	No.	ACCIDENTS.	No.
Burns and Scalds,	7	Fracture of Leg,	6
Bite of Monkey,	1	,, Compound of Leg,	1
Bite of Dog,	2	,, Patella,	1
Dislocation of Hip,	1	,, Upper Jaw,	1
,, Elbow,	1	,, Ribs,	1
,, Shoulder,	4	,, Thigh,	2
Fracture of Acetabulum,	1	Injuries of Head,	12
,, Clavicle,	3	Wounds, Contusions, and General Injuries,	67
,, Humerus,	1		
,, Compound of Humerus,	1		

DISEASES.	No.	DISEASES.	No.
Abscess,	9	Dropsy,	11
Anemia,	6	Erysipelas,	5
Aneurism,	1	Epistaxis,	1
Cancer of Breast,	5	Elephantiasis,	1
,, Lip,	4	Excessive Intoxication,	1
,, Tongue,	1	Hernia,	10
Diseases of Brain and Nervous System,	16	Hemorrhoids,	5
,, Bones and Joints,	19	Hydrocele,	4
,, Eyes and Ear,	25	Paronychia,	8
,, Heart,	6	Purpura,	1
,, Lungs,	80	Rheumatism,	34
,, Stomach and Liver,	58	Struma,	10
,, Skin,	26	Syphilis,	10
,, Testicle,	3	Tumours,	5
,, Uterus,	4	Ulcers,	26
,, Urinary organs,	14	General Debility and other Diseases,	29
		Fever,	203

Diseases and Accidents which proved fatal.

	No.		No.
Accident,	1	Disease of Brain,	4
Bronchitis,	3	,, Heart,	4
Diarrhea,	1	Morbus Addisonii,	1
Dropsy,	4	Phthisis,	8
Gangrene,	1	Peritonitis,	2
Hectic Fever,	3	Purpura,	1
Fever,	21	Syphilis,	2

Operations.

	No.		No.
Amputations of Breast,	2	Removal of Cancerous Lip,	2
,, Leg,	2	,, Tumour from Shoulder,	1
,, Thigh,	1		

BOOKS RECEIVED, AUGUST, 1867.

1. Clinical memoirs on the diseases of women. By M. Gustave Bernetz, physician to La Pitie, and M. Enest Goupil, late physician to the Bureau Central. Vol. ii. Translated and edited by A. Meadows, M.D., New Sydenham Society. 1867. 8vo, pp. 270.

2. On the management of labour in contracted pelvis. An inaugural thesis for which a first prize was awarded by the Minister of Public Instruction of France. By W. H. Jones, M.D., M.R.C.S., Eng. Translated from the French. London: Hardwicke, 1867. 8vo, pp. 59.

3. On the electrolytic treatment of tumours and other surgical diseases; being a paper read before the Medical Society of London, on January 28, 1867 By J. Althaus, M.D., &c. London: Churchill. 1867. 8vo, pp. 31.

4. Ophthalmic review. No. 11.

5. On the repressive measures adopted in Paris compared with the uncontrolled prostitution of London and New York. By A. Vintras, M.D., physician to the French dispensary. London: Hardwicke. 1867. 8vo, pp. 86.

6. On the poisons of the spreading diseases, their nature and mode of distribution. By B. W. Richardson, M.A., M.D., &c. London: Churchill. 1867. 8vo, pp. 27.

7. A new process for preparing meat for weak stomachs. By W. Marcet, M.D., &c. London: Churchill. 1867. 8vo, pp. 27.

8. Observations on medical education. By J. Hughes Bennett, M.D., &c. Edinburgh: Black. 1867. 8vo, pp. 27.

9. The state of the medical profession further exemplified; an additional supplement to the "medical profession in Great Britain and Ireland." By Edwin Lee, M.D., &c. London: Johnson. 1867, 8vo, pp. 96.

10. On the function of the blood in muscular work. By C. W. Heaton. Reprint from Phil. Mag.

11. Supplement to Dr. E. Scoresby Jackson's "note book on materia medica," containing the alterations and new preparations introduced into the British pharmacopeia for 1867. By Angus Macdonald, M.D., &c. Edinburgh: Maclachlan and Stewart. 1867. Post 8vo, pp. 46.

12. On the treatment of consumption, with notices of successful and unsuccessful cases. By C. T. Thompson, M.D. 2nd ed. London: Hardwicke. 1867. 8vo, pp. 27.

13. Ninth report of the board of superintendence of the Dublin hospitals, with appendices. Dublin: Thom. 8vo, pp. 48.

14. The mixture book; or mixtures pharmacopeial, hospital, and magistral, their preparation, formulæ, doses, leading tests, and synonymes, including quack medicines. By A. J. Cooley. London: Hardwicke. 1867. Post 8vo, pp. 219.

15. On some of the conditions of molecular action. By A. Ransome, M.B. Reprint from Phil. Mag.

16. On the diseases of the lungs and air passages, their pathology, physical diagnosis, symptoms, and treatment. By H. W. Fuller, M.D. 2nd ed. Churchill. 1867. 8vo, pp. 534.

17. The irritable bladder, its causes and its curative treatment, including a practical view of urinary pathology and deposits. By Fred. Chas. Gant, F.R.C.S. 2nd ed. Partly re-written and enlarged. London: Churchill 1867. Post 8vo, pp. 186.

18. On happiness in its relations to work and knowledge. By the late Sir John Forbes, M.D., F.R.S. 2nd ed. London: Hamilton and Adams. 1867. Fcap. 8vo, pp. 57.

19. Proceedings of pathological society of Philadelphia. Vol. ii. Philadelphia: Collins. 1867. 8vo, pp. 250.

20. De l'evidement sous-périosté des os. Par M. Ch. Sédiliot, ouvrage couronné par l'Institute de France. Deuxième édition. 1867. 1 vol. gr. in-8 de 488 pages, avec 6 planches comprenant 16 figures chromo-lithographiées. Paris: Bailliere et Fils.

21. Bade, ses eaux thermales, chlorurées, sodiques, et leurs vertus curatives. Par J. Seeligmaan. In-8 de 138 pages. Paris: Bailliere et Fils.

22. Nouveau dictionnaire de médecine et de chirurgie pratiques, illustré de figures intercalées dans le texte. Directeur de la rédaction: le docteur Jaccoud. Tome 6^{me}. Cab Chal. Paris: Bailliere et Fils. 1867. 8vo., pp. 831.

23. Recherches sur vitesse du cours du sang dans les artères du cheval au

moyen d'un nouvelle hemachromographè. Par M. L. Lortet. Paris: Bailliere et Fils. 1867. 4to, pp. 39.

24. Extracts from the records of the Boston society for medical improvement, with papers read before the society. By Chas. D. Hemans, M.D. Vol. v., No 4. Boston. 1867. 8vo.

25. Syphilitic affections of the nervous system, and a case of symmetrical atrophy; with other contributions to the pathology of the spinal marrow. By Thos. Reade, M.B., T.C.D., L.R.C.S.I. London: Churchill. 1867. Post 8vo, pp. 111.

26. Leçons de Clinique chirurgicale professées a l'Hotel Dieu de Lyon. Par M. A. Desgranges, recueillies par MM. les docteurs S. Serullar et J. Christot. 1^{cr} fascicule. I.—Tumeurs abdominales. II.—Corps étrangers du genou. III.—Tumeurs du sein. Paris. 1867. In-8o. de 108 pages. Chez. MM. J. B. Bailliere et Fils.

27. Recherches surles altérations des artères à la suite de la ligature. Par M. Cocteau, docteur en médecine, prosecteur des hopitaux. Grd. in-8o. de 77 pages. Chez. MM. J. B. Bailliere et Fils.

28. Ophthalmatrische beobachtungen. Von Dr. A. Mooren. Berlin. 1867. Hirschwald. 8vo, pp. 345.

29. Meteorological observations on the humidity of the air of Scarbro', with chapters on rain, rain gauges, and rainfall investigations; and on the humidity of the atmosphere in relation to disease. By C. B. Fox, M.D. London: Simpkin. 1867. Fcap. 8vo, pp. 41.

30. The American journal of dental science, June, 1897.

31. Cesarean section; recovery of mother, child not viable. By W. Newman, M.D. Stamford: Langley. 1866. 8vo, pp. 20.

32. Clinical lectures, illustrated by coloured photographs from life, on the diseases of the skin; being a cheaper and enlarged edition of the author's "coloured photographs of diseases of the skin." By Balmano Squire, M.B., &c. London: Churchill. Nos. 1 and 2.

33. Hospitals, infirmaries, and dispensaries, their construction, interior arrangement and management, with descriptions of existing institutions, and remarks on the present system of affording medical relief to the sick poor. By F. Oppert, M.D., &c. London: Churchill. 1867. Royal 8vo., pp 218.

34. The elements of natural philosophy; or an introduction to the study of physical science. By Chas. Brooke, based on the treatise by the late Golding Bird. 6th ed. and 3rd by present author, amended and greatly enlarged. London: Churchill, 1867. Fcap. 8vo, pp. 851.

35. Germinal matter, and the contact theory. By Jas. Morris, M.D. London: Churchill, 1867. 8vo, pp. 23.

36. Ninth annual report of the general board of commissioners in lunacy for Scotland. Edinburgh: 1866. Blue Book. 8vo, pp. 274.

37. The prescriber's companion. By A. Meadows, M.D. 2nd ed., much improved and enlarged. Renshaw, 1867. 32mo, pp. 231.

38. Introductory address, at the public opening of the medical session, 1866–67, in the University of Glasgow. By W. T. Gairdiner, M.D. Glasgow: Maclehose, 1867. 8vo, pp. 22.

39. Surgical observations, with cases and operations. By J. Mason-Warren, M.D. Boston: Ticknor & Fields, 1867. 8vo, pp. 630.

40. A biennial retrospect of medicine, surgery, and their allied sciences, 1865–6. Edited by Mr. H. Power, Dr. Anstie, Mr. Holmes, Mr. Thos. Windsor, Dr. Barns, and Dr. C. H. Fagge, for the New Sydenham Society. London, 1867. 8vo, pp. 525.

41. On the principles of æsthetic medicine, or the natural use of sensation and desire in the maintenance of health and the treatment of disease, as demonstrated by induction from the common facts of life. By Jos. Peel Catlow, M.R.C.S. London: Churchill, 1867. 8vo, pp. 325.

42. On pain and other symptoms connected with the disease called hysteria. By D. De B. Hovell, F.R.C.S., Eng. London: Churchill, 1867. Cr. 8vo, pp. 44.

43. A manual for midwives and monthly nurses. By F. Churchill, M.D., &c. 2nd ed. Dublin: Fannin, 1867. Fcp. 8vo, pp. 177.

44. The diagnosis and treatment of the varieties of dyspepsia, considered in relation to the pathological origin of the different forms of indigestion. By Wilson Fox, M.D. London: MacMillan & Co., 1867. 8vo, pp. 243.

45. The spas of Belgium, Germany, Switzerland, France, and Italy; a handbook of the principal watering places on the Continent, descriptive of their nature and uses in the treatment of chronic diseases, especially gout, rheumatism, and dyspepsia; with notices of spa life and incidents in travel. By Thos M. Madden, M.R.I.A., L.K. & Q.C.P., &c. London: Newbery, 1867. Cr., 8vo, pp. 369.

46. Harvian Med. Society. Report of committee for the prevention of venereal diseases. Edited by C. R. Drysdale, M.D., and J. B. Curgenven, Esq. London: Richards, 1867. 8vo, pp. 14.

47. Ununited fractures successfully treated, with remarks on the operation. By H. J. Bigelow, M.D., Prof. Surg., Howard University. Boston: Clapp and Son, 1867. 8vo, pp. 25.

48. Railway accidents or collisions: their effect on the nervous system. By Wm. Cramps, M.D. London: Lewis, 1867. 8vo, pp. 20.

49. An Essay on the ligature and management of the umbilical cord at childbirth. By A. F. King, M.D., &c. Washington: Moore, 1867. 8vo, pp. 37.

50. The threefold nature of health and disease, or first lines of neurodynamic medicine. By Ed. Haughton, M.D., &c. London: Churchill, 1866. Fcp. 8vo, pp. 16.

51. Journal of cutaneous medicine. No. 2.

52. Pacific Medical and Surgical Journal. New Series. No. 1.

53. Traité expérimental et clinique de la régénération des os et de la production artificielle du tissu osseux. Par L. Ollier, Chirurgien en Chef de l'Hotel Dieu de Lyon. Paris: Masson, 1867. 2 vols., 8vo, pp. 443, 531.

54. A paper on pythogenic or enteric fever, in which it is attempted to disprove its communicability or identity with typhus. By W. St. J. Coleman, L.R.C.P., &c. Reprint from Med. Press.

55. Ueber die Varietäten der Armarteriendes Menschen und ihre morphologische Bedeutung Inauguraldissertation. Von A. Baader. Bern, 1866. Reeder and Simmen, 1866. 8vo, pp. 36.

56. Ueber die amyloide Degeneration insbesondere der Nieren, Inaug. diss. von Dr. A. Fehr. Bern: Reeder and Simmen, 1866. 8vo, pp. 164.

57. Lösung einer Pendel-Aufgabe. Von Prof. L. Schläfli. Bern: 1867.

58. Ankündigung der borlesungen der Universität. Bern, 1866.

59. Verzeichniss der borlesungen an der Hochschule in Bern, 1867.

60. Behandlung der Croupoesen Pneumonie mit Verartrum praeparatem Inaug. diss. Von Dr. T. Kocher. Würzburg, 1866. 8vo, pp. 94.

61. Mittherbungen aus der Klinik. Von Herrn Prof. Musil über Anwendung des Plumbum aceticum in rheumatismus acutus. Inaug. diss. Von Dr. C. Imfeld. Stans, 1866.

62. Du laryngoscope et de son emploi dans les maladies de la gorge avec un appendice sur la rhinoscope. Par Morell Mackenzie, Traduit de l'Anglais sur la 2nd edition. Par le Dr. E. Nicolas. Paris: Bailliere, 1867. 8vo, pp. 156.

63. De la laryngite chronique etudiée a l'aide du laryngoscope. Quelques mots sur la médication topique. Par le Dr. E. Nicolas, Marséille. 8vo, pp. 16.

64. On the medical and legal aspects of sanitary reform. By A. P. Stewart, M.D., and Ed. Jenkins, Barrister-at-law. London: Hardwicke. 1867. 8vo, pp. 100.

65. Question de priorité. Propriétés désinfectantes des permanganates alcalins. Par H. B. Condy. Paris: Bailliere et Fils. 1867. 8vo, pp. 48.

PERIODICALS WITH WHICH THE DUBLIN QUARTERLY JOURNAL IS EXCHANGED.

GREAT BRITAIN.

1. The British and Foreign Medico-Chirurgical Review. Churchill.
2. The Edinburgh Medical Journal. Oliver and Boyd.
3. The Retrospect of Medicine. Edited by W. Braithwaite. Simpkin and Co.
4. The Half-yearly Abstract of the Medical Sciences. Churchill.
5. Pharmaceutical Journal. Churchill.
6. The Lancet.
7. The Medical Times and Gazette. Churchill.
8. The British Medical Journal.
9. The Asylum Journal of Mental Science. Churchill.
10. The Glasgow Medical Journal. Mackenzie.
11. The Athenæum.
12. The Dublin Medical Press.
13. The Westminster Review. Trübner.

INDIA.

14. The Indian Vnnals of Medical Science. Calcutta: Lepage and Co.
15. Transactions of the Medical and Physical Society of Bombay.
16. The Madras Quarterly Journal of Medical Science. Madras: Gantz, Brothers.

AUSTRALIA.

17. The Australian Medical Journal, Melbourne: Wilson and Mackinnon. London: H. Baillière.

AMERICA.

18. The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. Philadelphia: Blanchard and Lea.
19. The American Journal of Science and Arts. Conducted by Professors Silliman and B. Silliman, Jun., and J. D. Dana, &c. New Haven.
20. The American Journal of Insanity, Utica, N.Y. State Lunatic Asylum.
21. The Cincinnati Lancet and Observer. Cincinnati.
22. Canada Medical Journal. Montreal: Dawson, Brothers.
23. The New York Medical Journal. New York: Muller and Mathews.
24. The Philadelphia Medical and Surgical Reporter.

AMERICA.—*Continued.*

25. The Richmond Medical Journal.
26. The Medical Record, New York: Wood & Co.

FRANCE.

27. Gazette Médicale de Paris. Paris.
28. Gazette Hebdomadaire de Médecine et de Chirurgie. Paris: Victor Masson.
29. Journal de Chimie Médicale, de Pharmacie, de Toxicologie, et Revue de nouvelles scientifiques, nationales et étrangeres, &c. Paris: Labé.
30. Journal de Pharmacie et de Chimie, &c. Paris: Victor Masson.
31. L'Union Médicale. Paris.
32. La Lancette Française, Gazette des Hôpitaux civils et militaires. Paris.
33. Revue Médicale Française et étrangère. Publié par le Docteur Sales-Girons, Paris.
34. Archives Générales de Médecine Paris: Asselin.
35. Bulletin de l'Académie de Médecine Paris: Baillière.
36. Mémoires de l'Académie de Médecine.
37. Revue de Thérapeutique Médico-Chirurgicale. Paris: Dr. A. Martin-Lauzer.
38. Journal de Médecine et de Chirurgie Pratiques a l'Usage des Médecines. Par Lucas-Cham-pionnère. Paris.
39. Journal des Connaissances Médicales et Pharmaceutiques. Paris.
40. Annales Médico-Psychologiques. Par MM. Baillarger, Cerise, et Moreau. Paris: V. Masson.
41. Bulletin Général de Thérapeutique, Médicale et Chirurgicale. Par le Docteur Debout. Paris.
42. Répertoire de Pharmacie. Par M. le Dr. Bouchardat.
43. Gazette Médicale de Strasbourg.
44. Journal de Médecine de Bordeaux.
45. L'Union Médicale de la Gironde, Bordeaux.
46. Annales D'Hygiène Publique et de Médecine Légale. Paris.
47. Gazette Médicale de Lyon. Dirigée par le Dr. P. Diday.

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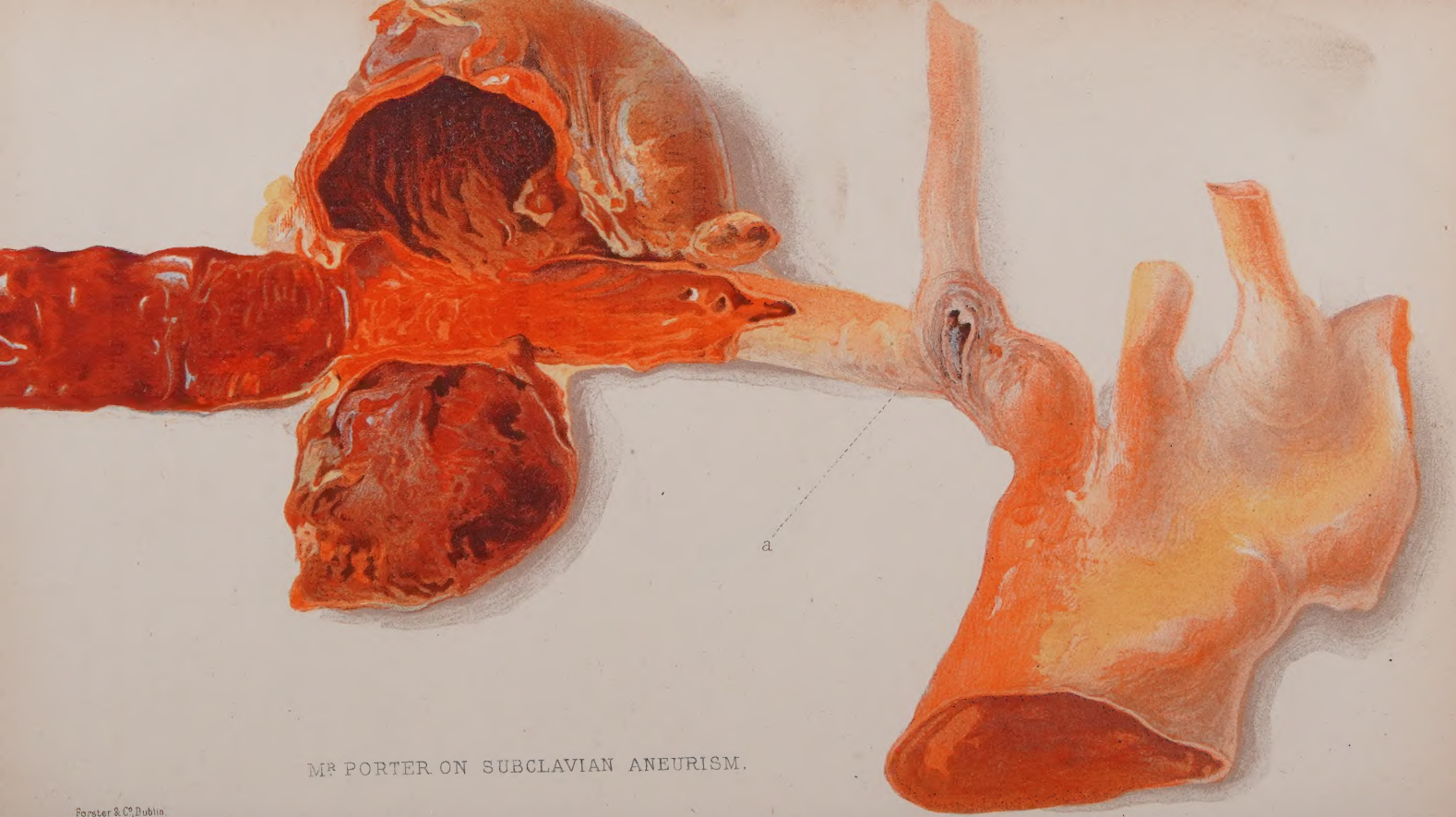

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